Psychiatry Research 229 (2015) 828–839

Contents lists available at ScienceDirect

Psychiatry Research

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

A systematic review of the benefits of physical therapy within a multidisciplinary care approach for people with schizophrenia: An update ☆

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ARTICLE INFO

Article history:
Received 12 January 2015
Received in revised form
15 June 2015
Accepted 30 July 2015
Available online 31 July 2015

Keywords:
Physical activity
Physical therapy
Exercise
Mental health
Yoga
Tai-chi
Progressive muscle relaxation

ABSTRACT

This systematic review summarizes the most recent evidence from randomized controlled trials (RCTs) considering the effectiveness of physical therapy interventions (aerobic exercises, strength exercises, relaxation training, basic body awareness exercises, or a combination of these) within the multidisciplinary management of schizophrenia. Two authors searched PubMed, PsycINFO, EMBASE, Web of Science, Physiotherapy Evidence Database (PEDro), and the Cochrane Library considering RCTs published from July 1, 2011–October 1, 2014. Thirteen RCTs representing 549 participants met the inclusion criteria. Overall, the results demonstrate that aerobic exercise significantly reduces psychiatric symptoms, potentially improves mental and physical quality of life and reduces metabolic risk and weight. Specifically, yoga reduces psychiatric symptoms, whilst Tai-chi and progressive muscle relaxation may also have benefits to patients. Two RCTs reported on adverse events. No adverse event was observed supporting the notion that physical therapy is safe in people with schizophrenia. There was considerable heterogeneity in the design, implementation and outcomes in the included studies precluding a meaningful meta-analysis. In general, the quality of physical therapy RCTS is improving and current research demonstrates that physical therapy approaches are valuable interventions and can help improve the psychiatric, physical and quality of life of people with schizophrenia.

1. Introduction

People with schizophrenia have a greatly increased number of physical comorbidities and experience a substantial premature mortality gap compared to the general population, with recent estimates suggesting a deficit of 15–20 years (Reininghaus et al., 2014). A number of factors have been proposed to account for the mortality gap, including high levels of smoking, alcohol use, a sedentary lifestyle (Vancampfort et al., 2010), limited access to healthcare and exercise facilities (Vancampfort et al., 2011b; De Hert et al., 2011) and in particular high levels of cardio-metabolic diseases (Vancampfort et al., 2013d; Stubbs et al., 2015). In addition, people with schizophrenia experience increased risk of osteoporosis (Stubbs et al., 2014a) and chronic pain (Stubbs et al., 2014b). This increased burden of somatic co-morbidities also has a deleterious impact upon an individual's mental health and quality of life (Vancampfort et al., 2013c, 2011).

In non-mental health settings, physical therapy has a recognized role in addressing many of these comorbidities. Given this, previously Vancampfort et al. (2012) reported that physical therapy approaches might have an important role to play in the multidisciplinary treatment of people with schizophrenia. The authors concluded that, although still limited, there is evidence that aerobic and strength exercises and yoga reduce psychiatric symptoms, state anxiety, and psychological distress and improve health-related quality of life (Vancampfort et al., 2012). The authors furthermore stated that aerobic exercise improves short-term memory and that progressive muscle relaxation reduces state anxiety and psychological distress (Vancampfort et al., 2012). Since the publication of this systematic review (Vancampfort et al., 2012), interest in managing these physical comorbidities and the

☆PROSPERO Registration number CRD42014014104.

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http://dx.doi.org/10.1016/j.psychres.2015.07.083
0165-1781/

possible role of physical therapy approaches in the treatment of people with schizophrenia increased (Stubbs et al., 2014c, 2014e; Soundy et al., 2014). For instance, a survey of members of the International Organization of Physical Therapists in Mental Health (IOPTMH, Stubbs et al., 2014d), a subgroup of the World Confederation of Physical Therapy demonstrated that physical therapy should have an integral part in the multidisciplinary treatment. Physical therapists should have a focused role on promoting the mental and physical health needs of this underserved population. Although physical therapists have an integral and established role in addressing many of the physical comorbidities seen in people without mental illness (e.g. cardiovascular disease, diabetes) consideration of the role of physical therapy in mental health settings is still in its infancy. Given this, the IOPTMH (Vancampfort et al. 2012, 2012b) stated that more rigorous evidence is needed to consolidate the role of physical therapy approaches within the multidisciplinary treatment of schizophrenia. In recognition of this, we set out to provide an updated critique of physical therapy interventions for researchers, physical therapists and decision makers. The purpose of this systematic review was to update the systematic review of Vancampfort et al. (2012) and summarize the most recent evidence from randomized controlled trials (RCTs) examining the effectiveness of these physical therapy interventions in the multidisciplinary management of schizophrenia.

2. Method

This systematic review was undertaken in accordance with the PRISMA guidelines (Moher et al., 2009) following a predetermined, published protocol (PROSPERO registration number: CRD42014014104).

2.1. Eligibility criteria

We included RCTs that met the following criteria:

(a) Participants. Included were people with schizophrenia spectrum disorders according to DSM-IV (Diagnostic and Statistical Manual of Mental Disorders, Fourth edition, 1994) or ICD-10 (International statistical classification of disease, injuries and causes of death (10th reversion), 1992) criteria (excluding bipolar disorder or major depression with psychotic features).

(b) Interventions. We considered a physical therapy approach which could comprise physical exercise such as aerobic exercises, strength exercises, relaxation training, basic body awareness exercises, or a combination of these in accordance with the World Confederation for Physical Therapy position statement (World Conference for Physical Therapy, 2007). Specifically physical exercise was defined as physical activity that is planned, structured, repetitive and purposive in the sense that improvement or maintenance of physical performance or health is an objective (American College of Sport Medicine Position Stand, 1998). The physical therapy intervention could be used as single experimental intervention or along with other interventions (i.e., cognitive remediation, occupational therapy) provided that physical therapy was the main intervention and if the specific effects of the physical therapy intervention could not be separated from other active components in the intervention.

(c) Control interventions. The control interventions could consist of care as usual, a wait-list condition or an intervention in healthy controls provided that both compared interventions had similar duration. Standard care was defined as care that people would have normally received had they not been included in the research trial. Such care would include hospitalization, community psychiatric nursing support, and outpatient care.

(d) Outcome measures. We considered any recognized outcome measure considering participants mental and physical health parameters using validated assessment tools.

We did not place any restrictions based upon age, sex or nationality of sample. If an overlap in data occurred in two studies from the same research team, we used the largest data set. We considered articles published in English and Spanish.

2.2. Data sources and searches

Two independent authors searched PubMed, PsycINFO, EMBASE, Web of Science, Physiotherapy Evidence Database (PEDro), and the Cochrane Library. Databases were searched from July 1, 2011 until October 1, 2014. Medical subject headings used included “schizophrenia” AND “physical therapy” OR “exercise” OR “relaxation” in the title, abstract, or index term fields.

2.3. Study selection

Search results were screened by title and abstract by two independent authors. In the event that the information in the title or abstract was insufficient, the researchers obtained the full-text. The next phase of the search strategy involved searching for unpublished RCTs and for RCTs potentially overlooked or absent from the databases. This step involved manually searching the reference lists in all retrieved articles and the available systematic reviews. Furthermore, the authors searched websites housing details of clinical trials, theses, or dissertations. Citation indexing was used to track referencing of key authors in the field, and local experts were contacted for further information.

2.4. Data extraction and quality assessment

In order to compare the quality of the included studies with the previous systematic review of Vancampfort et al. (2012) and to assess for potential bias in the trials, each study was evaluated with the previously validated 5-point Jadad scale (Jadad et al., 1996; Clark et al., 1999; Moher et al., 1995). A score of 0 to 5 is assigned, with higher scores indicating higher quality in the conduct or reporting of a trial. A trial scoring at least 3 of 5 is considered to be of strong quality. A trial scoring below 3 is considered to be methodologically weak. The Jadad scale focuses only on randomization, blinding, and withdrawals and dropouts to evaluate methodological quality of primary research. Only 2 of these 3 items are actually applicable to physical therapy because the nature of physical therapy interventions does not allow for blinding of the therapists, however blinding of assessors and participants is possible (Armijo et al., 2003). For this reason we decided the use the reliable PEDro scale (Maher et al., 2003) next to the Jadad scale as well. Each trial report is given a total PEDro score ranging from 0 to 10. Studies scoring 9–10 were considered methodologically to be of “excellent” quality, studies ranging from 6–8 were considered methodologically to be of “good” quality, studies scoring 4 or 5 were of “fair” quality while studies that score below 4 were felt to be of “poor” quality. After analysis of the methodological quality of the studies, we only included articles which score were 3 or high on the Jadad scale and 5 or higher on the PEDro scale. For the data extraction, we used the data collection form developed and used by the researchers in the previous review (Vancampfort et al., 2012). Two independent authors completed the methodological quality appraisal and data extraction.

2.5. Data synthesis

Due to the anticipated heterogeneity in the study design, interventions and outcome measures used a narrative synthesis to