ACRM
AMERICAN CONGRESS OF REHABILITATION MEDICINE

Archives of Physical Medicine and Rehabilitation

journal homepage: www.archives-pmr.org

Archives of Physical Medicine and Rehabilitation 2015;96:552-62

REVIEW ARTICLE (META-ANALYSIS)

Measurement Tools for Adherence to Non-Pharmacologic Self-Management Treatment for Chronic Musculoskeletal Conditions: A Systematic Review

Amanda M. Hall, PhD,[a] Steven J. Kamper, PhD,[b,c] Marian Hernon, MPH,[a] Katie Hughes, MSc,[a,d] Gráinne Kelly, PhD,[e] Chris Lonsdale, PhD,[f] Deirdre A. Hurley, PhD,[d] Raymond Ostelo, PhD[c]

From the [a]School of Public Health, Physiotherapy and Population Science, University College Dublin, Dublin, Ireland; [b]Musculoskeletal Division, George Institute for Global Health, Sydney, NSW, Australia; [c]EMGO+ Institute, VU University Medical Center, Amsterdam, The Netherlands; [d]Faculty of Education and Health Sciences, University of Limerick, Limerick, Ireland; [e]Department of Clinical Therapies, University of Limerick, Limerick, Ireland; and [f]Faculty of Health Sciences, Australian Catholic University, Sydney, NSW, Australia.

Abstract

Objectives: To identify measures of adherence to nonpharmacologic self-management treatments for chronic musculoskeletal (MSK) populations; and to report on the measurement properties of identified measures.

Data Sources: Five databases were searched for all study types that included a chronic MSK population, unsupervised intervention, and measure of adherence.

Study Selection: Two independent researchers reviewed all titles for inclusion using the following criteria: adult (>18y) participants with a chronic MSK condition; intervention, including an unsupervised self-management component; and measure of adherence to the unsupervised self-management component.

Data Extraction: Descriptive data regarding populations, unsupervised components, and measures of unsupervised adherence (items, response options) were collected from each study by 1 researcher and checked by a second for accuracy.

Data Synthesis: No named or referenced adherence measurement tools were found, but a total of 47 self-invented measures were identified. No measure was used in more than a single study. Methods could be grouped into the following: home diaries (n=31), multi-item questionnaires (n=11), and single-item questionnaires (n=7). All measures varied in type of information requested and scoring method. The lack of established tools precluded quality assessment of the measurement properties using COnsensus-based Standards for the selection of health Measurement INstruments methodology.

Conclusions: Despite the importance of adherence to self-management interventions, measurement appears to be conducted on an ad hoc basis. It is clear that there is no consistency among adherence measurement tools and that the construct is ill-defined. This study alerts the research community to the gap in measuring adherence to self-care in a rigorous and reproducible manner. Therefore, we need to address this gap by using credible methods (eg, COnsensus-based Standards for the selection of health Measurement INstruments guidelines) to develop and evaluate an appropriate measure of adherence for self-management.

Archives of Physical Medicine and Rehabilitation 2015;96:552-62

Improving patient adherence to self-management treatment advice for chronic musculoskeletal (MSK) conditions has been identified as a research priority by the World Health Organization (WHO).[1]

The WHO defines adherence as "the extent to which a person's behaviour (taking medication, following a diet or exercise plan, and/or executing lifestyle change), corresponds with recommendations from a health care professional."[1(p3)] Following this definition, measurement of adherence will vary depending on the nature of the treatment recommendations from the health care

Disclosures: none.

0003-9993/14/$36 - see front matter © 2015 by the American Congress of Rehabilitation Medicine
http://dx.doi.org/10.1016/j.apmr.2014.07.405

professional (HCP). For example, in situations in which the treatment recommendations involve only attending a supervised session (eg, supervised exercise class), measuring attendance to the session may be a sufficient assessment of adherence. However, in instances in which treatment recommendations involve unsupervised patient activities (eg, completing a home-based exercise program, following a meal plan, taking medication[s], performing activities of daily living, adopting postural advice or other behavioral changes), an assessment of the patient's unsupervised completion of these behaviors would be required. The latter situation more closely represents the circumstances relevant to self-management and forms the basis for the adherence measures investigated in this study.

Self-management typically involves providing a patient with advice and strategies to be followed independently on a long-term basis to manage their condition.[2] For patients with chronic MSK pain (eg, osteoarthritis, chronic low back pain), self-management can include both pharmacologic strategies (eg, use of medications for pain management and inflammation) and nonpharmacologic strategies (eg, advice to avoid bed rest, continue activities of daily living, education/postural advice for common activities, adopting a regular exercise regimen).[3,4]

Patients often have trouble following self-management advice that promotes lifestyle behavior changes (eg, changes in diet or physical activity),[5,6] and research has focused on finding ways to improve adherence to these types of activities for patients with chronic MSK pain. To date, little research has examined the extent to which self-management adherence has been accurately assessed. For example, the authors of a recent systematic review of interventions specifically aimed at improving adherence to exercise in patients with chronic MSK conditions[7] noted that the lack of a standardized and valid measurement tool to quantify adherence undermined investigations of effectiveness. This example may be illustrative of the need for research regarding how adherence to self-management interventions is measured and the adequacy of available measurement tools; however, a systematic overview is lacking.

Therefore, the primary aim of this study was to identify all measures of adherence to self-management treatments for chronic MSK conditions. The secondary aim was to report on the measurement properties of the identified measurement tools (eg, reproducibility, validity, responsiveness) and provide recommendations on the most appropriate measurement tool of adherence to be used in future research.

Methods

Data sources and searches

A search of 5 electronic databases (Cumulative Index to Nursing and Allied Health Literature, SPORTDiscus, PsycINFO, MEDLINE, Cochrane Central Register of Controlled Trials) was performed to identify all articles from the databases' inception to June 2012 that related to adherence to active nonpharmacologic self-management interventions in patients with MSK pain. A list of the search terms for each database can be found in appendix 1. Citation tracking was performed by manually screening reference lists of included trials and related systematic reviews to identify any studies that may have been missed from the electronic database search.

List of abbreviations:

COSMIN	**COnsensus-based Standards for the selection of health Measurement INstruments**
HCP	**health care professional**
MSK	**musculoskeletal**
WHO	**World Health Organization**

Study selection

From the identified articles, original studies were included if they satisfied the following predefined inclusion criteria: patients had a primary complaint of MSK pain (>3mo), study participants were >18 years, the intervention included an unsupervised active self-management component, and the article reported a measure of adherence to the unsupervised component of the intervention.

In this review, self-management is defined as follows: all nonpharmacologic strategies (which includes following advice to complete an exercise regimen, increase physical activity, change diet, perform activities of daily living, use postural advice during activities, avoid rest, practice relaxation, and other self-management strategies, such as heat/cold or transcutaneous electrical nerve stimulation machine) that are to be carried out in an unsupervised setting. Therefore, trials in which the only self-management strategy was medication use were excluded during the screening process. An active self-management intervention was defined as one which required the patient to carry out active nonpharmacologic treatment recommendations in an unsupervised setting. In multiarm trials, an active intervention was required in at least 1 arm to be considered relevant for this review.

A distinction was made between studies that recorded physical activity as a measure of outcome and those that captured these data only to measure adherence to treatment advice. Only studies that explicitly stated that they were measuring adherence were included; studies that recorded exercise performance as an outcome measure were excluded from this review. There was no limitation in terms of study design.

To determine eligibility, each title/abstract was screened independently by 2 authors (A.M.H., S.J.K., or G.K.) for population, intervention, and outcome inclusion criteria. After this process, each full-text article was then independently screened by 2 of the authors (A.M.H, S.J.K., G.K., K.H., or M.H.) to determine final inclusion in the review. Only studies published in peer-reviewed literature were included. Studies were included if written in English or if an appropriate translation was possible (ie, we were able to obtain translations for German, French, and Dutch studies). When relevant systematic reviews were located, the original studies were screened for eligibility and included as appropriate.

Data extraction

Data were extracted from included studies using a standardized data extraction form. Extracted data included descriptive data regarding populations, interventions, unsupervised intervention components, measures of unsupervised adherence, and scoring of adherence measures. Any disagreements regarding data extraction were resolved by consensus and arbitration by a third review author (D.A.H.), if necessary. A third review author was not required for the data extraction process because consensus was reached for all articles.