Reviewer’s report

Title: Predictive factors of adherence to frequency and duration components in home exercise programs for neck and low back pain: an observational study.

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Reviewer: Arja Hakkinen

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Predictive factors of adherence to frequency and duration components in home exercise programs for neck and low back pain: an observational study by Francesc Medina-Mirapei et al.

According to the authors the aims of the study are to identify if patients with neck or low back pain participating in home exercise programs have different rates of adherence to exercise components of frequency per week and duration per session, and to identify if both exercise components have distinct predictive factors.

In this study a cohort of one hundred eighty-four patients were studied prospectively during one month after intervention. Usually home based therapeutic exercise in musculoskeletal problems (like neck and back pain) should be carried out for longer period than one month to be effective. Thus this study is dealing with short-term adherence and this should be clarified.

The study had three measurement periods: at baseline (measuring characteristics of patients and pain), at the end of physiotherapy intervention. It remains unclear if the physiotherapists were aware about the study while treating their patients. This may have had influence on the behavior he physiotherapists. And what was the length of physiotherapy. Was the aim of the therapy just to give instructions for HEP within 2-3 sessions?

Subjects: Patients with chronic neck or low back pain attended physiotherapy in eight primary care centers were studied prospectively. What was the duration of neck or back pain (did they have acute or chronic pain) – this may have influence on adherence.

Adherence to frequency and duration components were measured using a frequency based response scale (from never to always. Adherence was regarded when patients exercise frequently (always, seldom). On the other hand the physiotherapist recorded type of exercise (strength/stretching), total number of exercises per session, frequency per week (days) and estimated duration for each session of exercises for HEP. As the information about the individual HEP programs were recorded, this information should have been used to calculate how the patients reached their “own target levels” in training frequency and
duration. Did all the patients have the same instructions to carry out the programs (more than 6 times per week?). Or what was the optimal adherence for individual patients. If the patients were instructed to do strength training the optimal frequency might be 2-3 times a week?

In Table 2 showing baseline information of respondents and non-respondents different type of statistical analysis should be used for different type of variables (e.g. age, sick leave, education = nonparametric tests etc.).

In the univariate and multivariate logistic regression analysis the relationships between predictive factors and outcomes were studied. However, when explaining these two main study questions (frequency and duration of the HEPs), the components of these variables were used in the model in the characteristics of heps (days per week and duration) and in the adherence (Good adherence to frequency per week, Good adherence to duration per session). This type of analysis leads to multicollinearity problem. The authors do not show the degree to which independent variables in a study are related to one another).

Why in the regression model - CHARACTERISTICS OF PAIN - included low back pain but not neck pain?

In the discussion the authors write: “It is important to note that none of the patient characteristics are significant determinants of adherence in this sample”. This is true, but there is no information about the type of neck or back pain. There is a big difference whether the patients have chronic non-specific back pain, lumbar disc herniation or spinal stenosis. Also neck pain may have several reasons with multiple symptoms. The authors should clarify which type of back or neck pain patients are in question?

**Level of interest:** An article of importance in its field

**Quality of written English:** Acceptable

**Statistical review:** Yes, and I have assessed the statistics in my report.

**Declaration of competing interests:**

I declare that I have no competing interests.

Sincerely Arja Häkkinen