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.

Version: 1 Date: 1 August 2009

Reviewer: Jenny Keating

Reviewer's report:

Thank you for the opportunity to review this report. This work investigates factors that influence adherence to duration and frequency components of prescribed exercise. It is very interesting study and the results are of potential interest to those who prescribe exercise.

All the suggestions below are essential (compulsory) revisions.

There are a large number of grammatical errors in the work. At times this has the effect of concealing the message, and specific examples are highlighted below. The paper requires proof reading before being resubmitted.

The authors need to be more rigorous in the way that previous research is summarised. Very old references are cited, findings are incorrectly reported and the background presents a biased perspective on current thinking in this field (examples below).

The predictive data linking factors to whether or not people complied with prescribed duration and frequency of exercise need verification in an independent sample. Most relationships that hold in the first sample analysed deteriorate significantly in subsequent samples, as they reflect a ‘line of best fit’ through the data. This should be stated as a limitation of the work.

Some discussion regarding the sample size that is appropriate for examining so many predictors is important to include in the method.

Specific comments are provided below.

Exercise therapy is often indicated in the treatment of neck and low back pain [1, 2].

Update these references and other very old references throughout.

Page 3 Last paragraph

The evidence supporting the importance of exercise and the low adherence rates among patients with neck and low back pain have led to an increased interest in identifying determinants of HEP adherence.

Provide references.
Many factors have been identified that affect decisions regarding exercise behaviors. These include characteristics of patients, their illness and environment, aspects of the prescribed program and of the provider [5].

This is not what the cited author showed: the study (Sluis EM, Kok GJ, Van Der Zee J: Correlates of exercise compliance and physical therapy. Phys Ther 1993, 73:771-86.) was a correlational design and did not establish cause and effect.

However, findings related to other factors are weak or contradictory between studies. It has been suggested this could partially be due to different research studies have measured distinct components of exercise [12].

Evidence suggests that, in general, people can adopt one component of prescribed HEP (intensity, duration or frequency) without being able to engage in other HEP components [13].

Moreover, some experts have provided evidence for determinants of these HEP components differing among healthy people [14].

Instructions and followup for exercises were identified from a patient questionnaire, which obtained valid and reliable measures of them [18].

The cited paper does not report a meaningful method for assessing instrument reliability. Validity was assessed by comparing patient responses to patient records, but no argument was made regarding the validity of patient records as a reference standard.

In the cited study, specificity of patient responses was very poor when compared to this reference standard. It is not clear why the authors consider this questionnaire both reliable and valid.
For this purpose, one month after physiotherapy intervention was completed, patients who received some of the exercise components were asked about their performance. Adherence to frequency and duration components were measured using a frequency based response scale (from never to always) adapted from the adherence scale of Sluijs et al [5]. Adherence was regarded when patients exercise frequently (always, seldom). To avoid desirability bias, questions were phrased indirectly according to recommendations from Sackett and Haynes [19].

This section requires rewriting. It is confusing

Page 8 paragraph 1
Age and sex were included in all models because of the fundamental social and psychological significance of these variables.

Factors were sought that might explain adherence to frequency of exercise and to duration of exercise session. If age and sex were not found to be significantly different for adherers and non-adherers, they were still included in the model “because of the fundamental social and psychological significance of these variables”. The logic of this requires more explanation. What would be the negative consequence of omitting them from the multivariate model if they were not related to adherence?

Can a section be added that justifies the number of predictor variables with consideration of the sample size

Page 9
Can you clarify how people were categorised as adherent or non adherent to each of the 2 behaviours of interest

Adherence rates
The proportion of subjects reporting adherence to frequency and duration of the HEP during the first month have slight differences. Approximately, there are 10% more subjects with adherence to component of duration per session (70.1% ±7.1) than frequency per week (60.7% ±7.0). Patients had more difficulty fulfilling the weekly exercise sessions of the HEP than the duration of each session.

Before claiming that proportions are different, they should be tested for significant difference.

Given the high number of variables investigated some chance findings are likely. Predicting studies require verification in an independent sample if an obtained regression is to be considered stable and valid rather than the line of best fit through the data. Some discussion about this should be included

Page 11 Last paragraph
Perhaps once an exercise session is initiated, patients regard to their experience to modify what they need for their health in relation to duration.

Reword to clarify the point being made here
Interventions are necessary for patients to understand that each exercise session is of sufficient duration to achieve desirable outcomes.

It is not clear what is meant

Page 11 4th last line

Interventions are necessary for patients to understand that each exercise session is of sufficient duration to achieve desirable outcomes.

Since we do not have data that informs us of the ‘best’ duration, this line should be removed

Page 12 para 1

Our results supports the IMB model: providing patients’ required information has a decisive influence on performing home exercises while when the information is not required by the patients the effect on changing physiotherapist behavior is null.

Clarify which data support this conclusion

Page 112 Para 2

it was expected but nonetheless noteworthy that there was a significant relationship between frequency and duration adherence,

Cross reference to the data that supports this claim

End of Page 12 Beginning of page 13

However, it should be noted that the physiotherapy adherence literature does show that the interactions physiotherapists-patients increase adherence in home exercise programs

Reword. The point being made here is not clear

Intervention characteristics also have an important influence on adherence. In this sense it could be emphasized that the greater the number of exercises prescribed for the HEP, the greater the probability that subjects do not complete them.

Clarify that this is hypothesised (not emphasised)

There was a small difference in adherence to frequency and duration recommendations. As such, it was expected but nonetheless noteworthy that there was a significant relationship between frequency and duration adherence, suggesting that when patients meet frequency recommendations it is more probable that they also regularly meet the duration recommendations.

Cross reference to the tests that confirm these relationships here
Level of interest: An article whose findings are important to those with closely related research interests

Quality of written English: Not suitable for publication unless extensively edited

Statistical review: Yes, but I do not feel adequately qualified to assess the statistics.

Declaration of competing interests:
I declare that I have no competing interests