Author's response to reviews

Title: What factors explain the amount of utilization of physical therapy care in patients referred with low back pain; a multilevel analysis

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Author's response to reviews:

Dear editorial team,

Thank you for your thorough feedback on our manuscript "What factors explain the amount of utilization of physical therapy care in patients referred with low back pain: a multi level analysis (MS 1106594052685272)". It is our pleasure to re-submit the manuscript for further consideration. We have considered each of the reviewers' comments and, where we feel it as appropriate, we have revised the paper accordingly.

Below a point-by-point response to each of the reviewers' comments follows.

Referee 1

1. Explaining remark of health belief

As suggested by the reviewer, the authors changed parts of the fifth paragraph of the discussion to give more attention to health belief, which includes coping and fear-avoidance beliefs: "Unexplained variation might be composed of appropriate factors, such as psychosocial characteristics. Coping style, for example, is predictive of the ability to control or adjust pain and a higher ability to control pain might result in a lower number of physical therapy treatment sessions. Furthermore, some LBP patients have high levels of fear avoidance beliefs, which result in avoidance behavior. Avoidance behavior is perceived to be a maladaptive response, as it is associated with negative psychological consequences (e.g., exaggerated pain perception) and negative physiological consequences (e.g., decreased range of spine motion). This reaction is likely to be associated with a higher number of treatment sessions."

2. More information about the Dutch Health Insurance System

The authors have added the following information on the Dutch insurance system in box 1: "In the Dutch healthcare system, physical therapists are only accessible after referral by a physician and over 90% of patients visiting the physical therapist have been directly referred by their GP. The other 10% are referred by a medical specialist. People in the Netherlands have either public or private health insurance, depending on their level of income. Public insurance cover for physical therapy is nationally regulated and in 2002 and 2003 this meant that people with public insurance (66% of the population) with low back pain were covered for 9 treatment sessions per episode per year. People with public insurance were able to obtain additional private insurance that covered them for more than 9 treatment sessions. Private insurance cover (the other third of the population) for physical therapy was not regulated at national level. Every physical therapy session lasts about 25 minutes and physical therapists are paid per session, irrespective of the type of diagnosis and intervention. In the Netherlands, nearly all therapists working in primary care are organised in private practices. The Dutch situation will change in 2006; the differentiation between public and private healthcare insurances will disappear and physical therapy will be accessible without a referral."
3. Variables are treated as fixed variables

The reviewer expresses some concern about using interventions as fixed variables. We agree with the reviewer that the choice for interventions will change during the treatment episode. However, in our registration network the interventions are registered at the end of the treatment episode. At most three interventions, that have been applied in at least 50% of all the treatment sessions, can be recorded (see also line 14 in the section 'outcome variable and predictor variables'). In this way we overcome the problem of changing interventions during the treatment episode.

4. Distribution of number of sessions is skewed

As the reviewer assumes, the distribution of number of sessions indeed is very skewed. However, in the study a large number of patients is included. Therefore, the large variation should not be a problem. Furthermore, we have analyzed the data while leaving the extreme values out and we performed a log-transformation. Both analyses did not resulted in other outcomes. We have added this information in the methods: "The multilevel analysis was done with three dependent variables: viz. the "raw number of sessions, a log-linear transformation and a dataset in which the extreme values have been left out." Furthermore, in the results we explain our choice to show the analyses on the regular data set: "The three analyses yielded similar results. Since analyses containing log-transformation will be difficult for the reader to interpret, only the results on the raw number of sessions will be shown."

5. Breakdown in interventions for number of sessions and range

As the interventions are not the topic of the manuscript, the authors belief that it is not relevant to show an overview of interventions classified for number of sessions and range. Besides, the interventions are not recorded in each treatment session, but only once, i.e. at the end of the treatment episode.

6. Relation between risk factors and number of sessions

As suggested by the reviewer the authors added the following information about the relation between risk factors and number of sessions: "Unexplained variation might be composed of appropriate factors, such as psychosocial characteristics. Coping style, for example, is predictive of the ability to control or adjust pain and a higher ability to control pain might result in a lower number of physical therapy treatment sessions. Furthermore, some LBP patients have high levels of fear avoidance beliefs, which result in avoidance behavior. Avoidance behavior is perceived to be a maladaptive response, as it is associated with negative psychological consequences (e.g., exaggerated pain perception) and negative physiological consequences (e.g., decreased range of spine motion). This reaction is likely to be associated with a higher number of treatment sessions. The extent to which those factors are indeed related to the number of physical therapy treatment sessions is unclear as yes, however. In addition to psychosocial factors, the ability to learn motor behavior might also influence the number of physical therapy treatment sessions. Patients with a low ability to learn motor behavior will need more treatment sessions than patients with a high ability to learn motor behavior. Furthermore, a patient with a high baseline disability will need more treatment sessions than a patient with a low baseline disability."

7. Text info in Table 5

The information in the note is added to the table to enhance the intelligibility.

Referee 2

1. Quality of written English

The manuscript has been revised by a native speaker.

2. Stronger justification for the work.

In order to justify the work the authors added the following sentence "To the knowledge of the authors, the current study is the first one in which different levels are taken into account to estimate not only the variation, bust also its location." to the introduction part.

3. Justification of concept of standardization of treatment
It is not the authors' aim to standardize the treatment for LBP. The authors agree that the condition is very generic and that a lot of other factors can be discussed also. However, the aim is to determine how the variance in the number of physical therapy treatment sessions in patients with non-specific low back pain (LBP) is distributed over several levels and to determine the factors that cause this variation. Therefore, the authors believe it is not relevant to discuss other parts of the clinical process.

4. Title

The authors have changed the title as suggested by the reviewer into "What factors explain the number of physical therapy treatment sessions in patients referred with low back pain; a multilevel analysis"

5. Background section of abstract and first paragraph of introduction

In the authors' opinion variation is the focus of the study. Apparently, this was not clear for the reviewer. Therefore, we reformulated our aims into "1) To determine how the variance in the number of physical therapy treatment sessions in patients with non-specific low back pain (LBP) is distributed over patient level, therapist level and practice level; 2) To determine the factors that explain the variation, with factors relating to all three levels being taken into account."

6. State number of treatments in aims

The authors have replaced the word "utilization" by "number of physical therapy treatment sessions" in the aims and other parts of the manuscript.

7. Discussing cost implications

The cost implications of utilization of physical therapy services is beyond the focus of the manuscript. In view of the length of the manuscript, the authors' decided not to add information about the cost implications.

8. Comparison of mean number of sessions with other countries

The authors add the following paragraph in the discussion: "The mean number of treatment sessions is ten in the current study, but comparisons with international literature suggest that the mean number of treatment sessions varies. One study in Northern Ireland shows a median number of five treatment sessions in patients with LBP, while a study in the United States of America showed a mean number of eleven treatments sessions. In the Dutch situation the mean number of treatment sessions is situated around the number of treatment sessions that is eligible for reimbursement in public health insurance."

9. Use of only private practices

In the Netherlands, nearly all physical therapists in primary care are working in private practices. The authors added this information in box 1, in which the Dutch healthcare system is discussed: "In the Netherlands, nearly all therapists working in primary care are organised in private practices."

10. Potential bias by including volunteers

We added information about bias by including volunteers at the limitations' part in the discussion part: "Another limitation of the study is the possibility that participating therapists are a subgroup of the Dutch therapists, i.e. therapists working in computerized practices and therapists that were willing to participate." However, all research designs may have bias by including volunteers.

11. Evidence of the representativeness of the sample

As no English literature is available about the representativeness of the sample, the authors have added information on the gender and age of all Dutch physical therapists working in private practices in table 1. Furthermore, we added the following information to the study sample: "The therapists selected did not differ significantly from the Dutch physical therapists."

12. Definition of chronic LBP

The authors agree with the reviewer that the definition of chronic LBP normally is three months or more. Therefore, we changed the description into "sub-acute or chronic LBP".
In the assumption that we have satisfactorily addressed all the points raised by the reviewers, we look forward to hearing from you.

Sincerely,

On behalf of all authors,

Ilse Swinkels