# Education of Municipality-based Physiotherapists in Managing Chronic Low Back Pain - an Observational Study

## Date

**March 20th 2023**

## Ethical committee reference number

**S-20222000 - 156**

**Objective**

To investigate potential changes in patient outcomes following an educational intervention aimed at upskilling physiotherapists in individualized bio-psycho-social management of patients with disabling low back pain (dLBP) in municipality rehabilitation settings. Focus will both be on changes in patient reported outcomes as well as changes in clinician behavior. Likewise, the feasibility of implementing such changes within municipality settings will be evaluated

**Method**

*Design*

A prospective, observational case-control study

*Participants*

Patients with dLBP referred to municipality-based rehabilitation from the Spine Centre of Southern Denmark. Eligibility is determined on the following criteria:

Inclusion Criteria:

- Referred to municipality rehabilitation from the Spine Centre of Southern Denmark
- Over 18-65 years
- Speaks and comprehends Danish
- A score over 40 on the Örebro Musculoskeletal Pain Questionnaire
- Low back pain as dominating cause for referral
- Can receive digital mail in E-boks (electronic communication platform)

Exclusion Criteria:

- A current diagnosis of psychiatric illness that precludes participation in rehabilitation
- a neurologic disorder or other disease that may affect the ability to participate in a municipality-based rehabilitation program
- neurological deficits related with radiographically confirmed lumbar spinal stenosis or radicular pain correlating with the clinical presentation
- Recent (within 6 months) history of a stabilizing operation of the low back

*Procedures*

Data collection:

All demographic information will be collected at baseline. This includes age, gender, weight, smoking (yes/no), diagnosis, duration of symptoms, job status (Working Yes/No. If Yes: normal capacity or reduced capacity because of back pain. If No: Full-time sick-listed because of back pain or sick-listed due to other reasons) if early retirement: due to back pain?), highest completed education beyond elementary school)

**Primary Outcome**

Roland Morris Disability Questionnaire 3 months after entering the study

**Secondary outcomes**

- Pain intensity (lower back and leg) 3 months after entering the study with a numeric rating scale (NRS:0-10)
- Örebro Musculoskeletal Pain Questionnaire 3 months after entering the study
- Self-perceived ability to work (NRS: 0-10) 3 months after entering the study
- Patient satisfaction, 7-point Likert scale 3 months after entering the study

Other Pre-specified Outcome Measures:

- Checklist to determine the competency of clinicians immediately after study completion
- Barriers and facilitators for implementing new knowledge in clinical practice – qualitative interview

**3 month follow-up**

- Roland Morris Disability Questionnaire at 3 months after discharge
- Pain intensity (lower back and leg) with a numeric rating scale (NRS:0-10)
- Self-perceived ability to work (NRS: 0-10)
- Patient Assessment of Transitions in Healthcare (PATH)
- Patient satisfaction, 7-point Likert scale

Other Pre-specified Outcome Measures:

- Checklist to determine the competency of clinicians and to assess interrater reliability between clinical supervisors
- Barriers and facilitators for implementing new knowledge in clinical practice – qualitative interview

*Schedule of procedures and assessments (for a schematic overview, see fig. 1)*

1. All participating physiotherapists (N=25) will recruit eligible patients (N=4 each, total N=100) who are asked to fill out project-specific questionnaires (see *procedures*) at the start and at the end of the rehabilitation program.
2. The participating physiotherapists will undergo a 13-day educational intervention (see description below under *intervention*) focusing on management of low back pain within an individualized multidimensional framework.
3. Point 1 is repeated on an additional 100 patients who undergo rehabilitation after the physiotherapists have completed the course
4. Participating physiotherapists will be evaluated on the background of a competency checklist which is scored by clinical supervisors connected to the study. The checklist will be scored after watching a video recording of a patient consultation performed by the physiotherapist in focus. The checklist covers 6 domains: Subjective and objective assessment, cognitive-functional therapy intervention, style of communication, patient's unhelpful pain behavior, and an overall assessment
5. Physiotherapists who demonstrate high and low competency (as determined by the evaluation of competency, point 4) are invited to participate in a semi-structured interview. The interview will explore the physiotherapists' experience of changes in management (if

any) after the educational intervention. This includes challenges, barriers and facilitating factors.

*Intervention*

All procedures will be based on the physiotherapists assessment where individual needs and goals are embedded into the rehabilitation. The project will investigate whether priorities within assessment and choice of management change after the educational intervention. The educational program for the physiotherapists will run over 13 days and is divided into 3 overlapping modules.

Module 1 (5 days) – Evidence-based theory

The module will focus on theoretical and practical aspects of the management of patients with back pain within a multidimensional framework. This includes differential diagnostics, social medicine measures, communication training with a focus on motivational interview and management of patients with dominant cognitive and emotional factors.

An evidence-based overview of contributing factors to the pain experience will be addressed including lifestyle, emotions, cognitions, response to pain including protective movement strategies, co-morbidity, activity level, physical/mental stress, patho-anatomy, nervous system sensitivity and social factors.

Module 2 (3 days) – Masterclass

Masterclass in where two experienced clinicians from the project group will demonstrate patient examinations and management of complex low back patients. The purpose is to help the participants gain insight into clinical application of relevant multi-dimensional management of dLBP. These demonstrations provide the platform for the following module 3.

Module 3 (5 days) – Clinical supervision

In the supervision sessions the participants receive training/guidance in integrating the theoretical and practical skills from the previous modules. Feedback/evaluation from supervisors ensures that the participants adapt a multi-dimensional perspective in their patient management. Competency is tested here

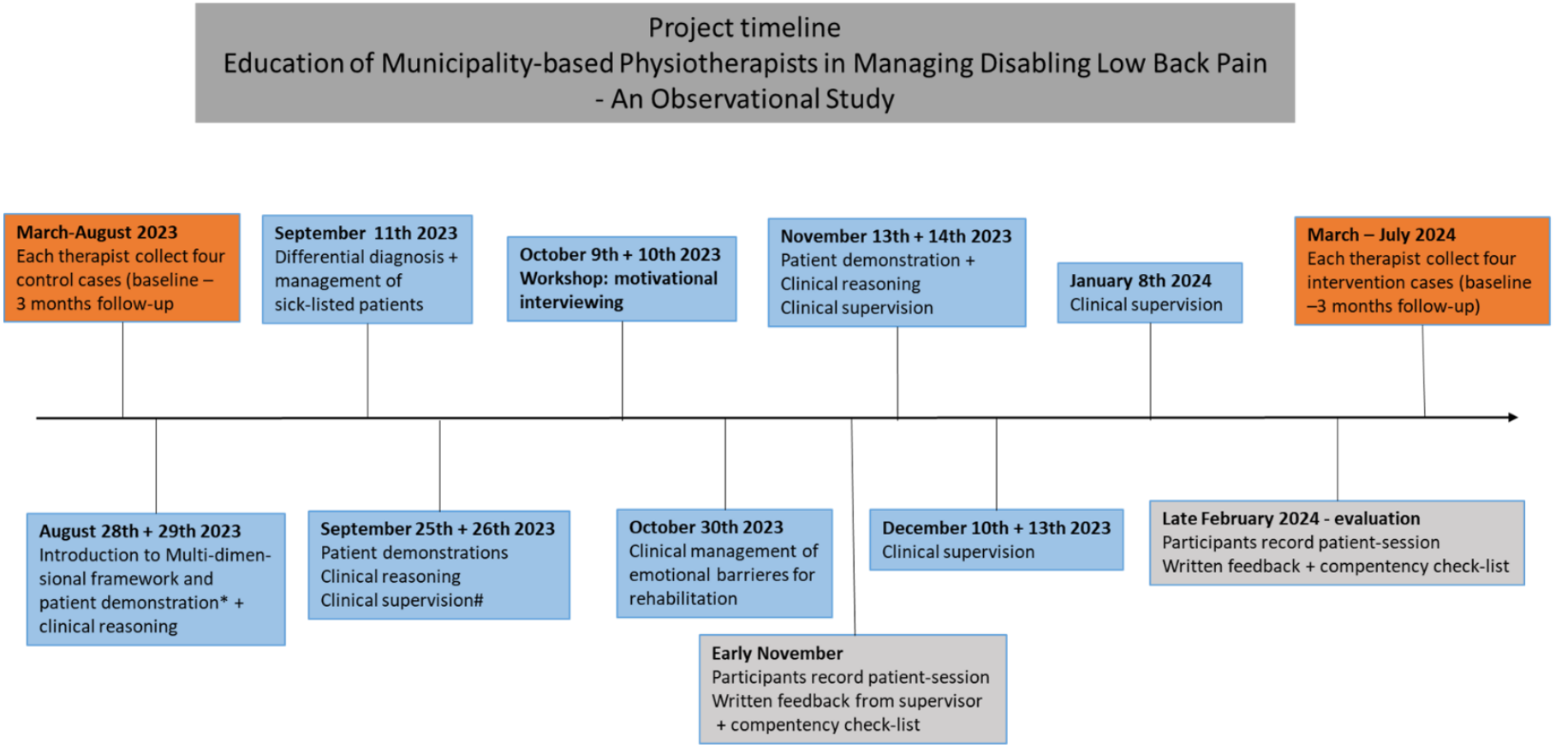


*Figure 1 A schematic overview of the project timeline*

**Statistics**

Statistical analysis will be performed using the appropriate statistical method according to the specific aims investigated. All demographic variables will be presented as means (± standard deviations), median [Interquartile range], or ratio (%) depending on type and distribution of data.
All primary and secondary outcomes will be analysed using paired tests (parametric or non-parametric based on normality), comparing baseline data and data 3 months after study start.

The sample size calculation is based on the previous findings of Ussing et al (2020)[1] which included a similar population and was conducted in a specialist spine clinic in a secondary setting. Based on these findings, we expect to find a 30% group difference in disability in favor of the post-education group. With a mean of 36 (SD 18) pre-intervention and 28 (SD 18) post-intervention, we expect that N=100 participants in each group will be sufficient to achieve an alpha level of 0.05 with a 0.8 power assuming a 10-15% dropout-out rate.

**Ethical considerations**

Participation in the study does not imply any risks for the patients. All study related procedures are either clinically indicated or do not come with any risk or harm. The patient needs to spend a little extra time filling out project-specific questionnaires as compared with standard care. The overall burden of participating is outweighed by the potential gain. This study is conducted in full conformance with the principles of the Helsinki Declaration. However, the project falls outside the scope of the ethical committee (regional and national) in Denmark as it falls under quality assurance.

[1] https://pubmed.ncbi.nlm.nih.gov/32221554/