



Multimodal and interdisciplinary interventions for long term pain

A Systematic Review

Summary

Background

We evaluated multimodal and interdisciplinary interventions for rehabilitation of people with long term pain. For this review such interventions were defined as coordinated treatment regimes, given by a team of therapists from at least two clinical professions and consisting of therapies directed at both physical and psychosocial aspects of the pain condition. Multimodal and interdisciplinary interventions were then compared with control groups receiving usual care or other, less comprehensive interventions.

The purpose of rehabilitation is long term or permanent improvement and we considered only studies which followed participants for at least six months after the end treatment for review. In addition, as multimodal interventions aim to improve a person's complete life situation rather than a single outcome,

we investigated effects on health broadly: physical, psychological, and social function, quality of life and pain. We evaluated the overall effect of all outcomes in combination, and the effects of specified groups of outcomes.

Aim

Our aim was to provide current evidence for health effects, and to assess health economical aspects, of multimodal and interdisciplinary rehabilitation in people with long term pain.

Method

A systematic review conducted according to the PRISMA statement. The protocol is registered in Prospero. The certainty of evidence was assessed with GRADE.

Conclusions

- ▶ Multimodal and interdisciplinary interventions are comparable to control interventions – and can be more effective for improving health outcomes in people with long term pain (moderate certainty of evidence).
- ▶ Due to a lack of reliable evidence, the cost effectiveness of multimodal and interdisciplinary interventions as compared to less comprehensive interventions cannot be calculated.

Comment

Longitudinal results from the included studies show that patients who underwent multimodal and interdisciplinary treatments improved by time, from baseline to at least six months post-treatment. If that improvement was a direct effect of the interventions, or contingent on other factors, cannot be ascertained by this review, however.

We were not able to calculate the cost efficiency of multimodal and interdisciplinary treatments empirically, but a model based on hypothetical effects on quality of life, health care consumption and sick leave show that efficiency is highly contingent on how long treatment effects on health care consumption and sick leave can be maintained.

Finally, we note there may be differences between study participants and people with long term pain in need of rehabilitation in the clinic. The included studies often recruited participants solely based on the condition long term pain, whereas patients who are candidates for rehabilitation in the clinic may suffer from more complex conditions including comorbidity and other personal challenges. Thus, the need and the effects of different interventions may differ between subgroups of people with long term pain. To investigate this, studies of treatment effects in such subgroups are needed.

Inclusion criteria:

The review was limited to multimodal and interdisciplinary interventions for long term pain of relevance for Swedish healthcare. Studies had to fulfil the following criteria for inclusion in the review:

- *Population:* adults (≥18 years) with long term pain of three month's duration or longer
- *Intervention:* coordinated interventions for rehabilitation, based on a biopsychosocial approach and
 - comprising at least one intervention directed at physical aspects and intervention directed at psychological and social aspects of the pain condition (multimodality)
 - delivered by a team of therapists from at least two different clinical professions (interdisciplinarity)
- *Control:* a different intervention for rehabilitation, treatment as usual or no intervention
- *Outcomes:* effects on health: pain, quality of life and mental, physical, and social function
- *Study design:* prospective and controlled clinical trials, with or without randomised allocation
- *Length of follow-up:* at least six months after the end of the intervention

Language: English, Swedish, Danish, or Norwegian

Exclusion criteria:

We chose not to include:

- Long term pain in palliative care
- Studies with fewer than 20 participants per comparison group

Search period: From 2000 to 2021. Final search February 2021.

Databases searched: Cochrane (Wiley), Embase (Elsevier), Medline (OvidSP), PsycINFO (Ebsco), CINAHL (Ebsco), Epistemonikos, International HTA Database (INAHTA), KSR Evidence (Kleijnen Systematic Reviews Ltd.) and NHS Evidence Search (NICE)

Risk of bias

All relevant studies were assessed for risk of bias. Studies with results assessed as of low or moderate risk of bias were included in analyses. Studies with results assessed as of high risk of bias were not included.

Client/patient involvement: No

Analyses and Results

Twenty four studies are included in the review. We evaluated effects on health by computing the proportion of measured outcomes in each study that showed statistically significant effects in favour of, or were to the disadvantage of the multimodal intervention, as well as the proportion of outcomes that did not show significant differences between comparison groups. We then assessed the overall results given all included studies. We analysed the results of 1) all outcomes in combination and 2) groups of outcomes covering different aspects of health divided according to components in International Classification of Function (ICF), quality of life and pain.

The results are presented in Table 1.

Table 1 Effects on health. Multimodal and interdisciplinary treatments versus less comprehensive interventions for people with long term pain: summary of findings.

Outcomes	Number of participants (Studies, study design)	Effect	Certainty of the evidence ¹	Deductions ¹
All outcomes in combination	n=3027 (24, RCT)	Comparable and may be more effective	⊕⊕⊕○	-1 Risk of bias ²
Groups of outcomes covering different aspects of the pain condition				
Quality of life	n=1888 (16, RCT)	Comparable and may be more effective	⊕⊕⊕○	-1 Risk of bias ²
The ICF-component body functions	n=2760 (21, RCT)	Comparable and may be more effective	⊕⊕⊕○	-1 Risk of bias ²

The table continues on the next page

Table 1 continued

Outcomes	Number of participants (Studies, study design)	Effect	Certainty of the evidence ¹	Deductions ¹
The ICF-component activities and participation	n=2862 (22, RCT)	Comparable and may be more effective	⊕⊕⊕○	-1 Risk of bias ²
The ICF-component environmental factors	n=479 (3, RCT)	Insufficient evidence	⊕○○○	-1 Risk of bias ² -1 Imprecision ³ -1 Indirectness ⁴
The ICF-component personal factors	n=293 (2, RCT)	Insufficient evidence	⊕○○○	-1 imprecision ³ -1 Indirectness ⁴ -1 Inconsistency ⁵
Pain intensity	n=2527 (19, RCT)	Comparable and may be more effective	⊕⊕⊕○	-1 Risk of bias ²
Pain interference	n=328 (3, RCT)	Insufficient evidence	⊕○○○	-1 Risk of bias ² -2 Imprecision ³

RCT = Randomised controlled study

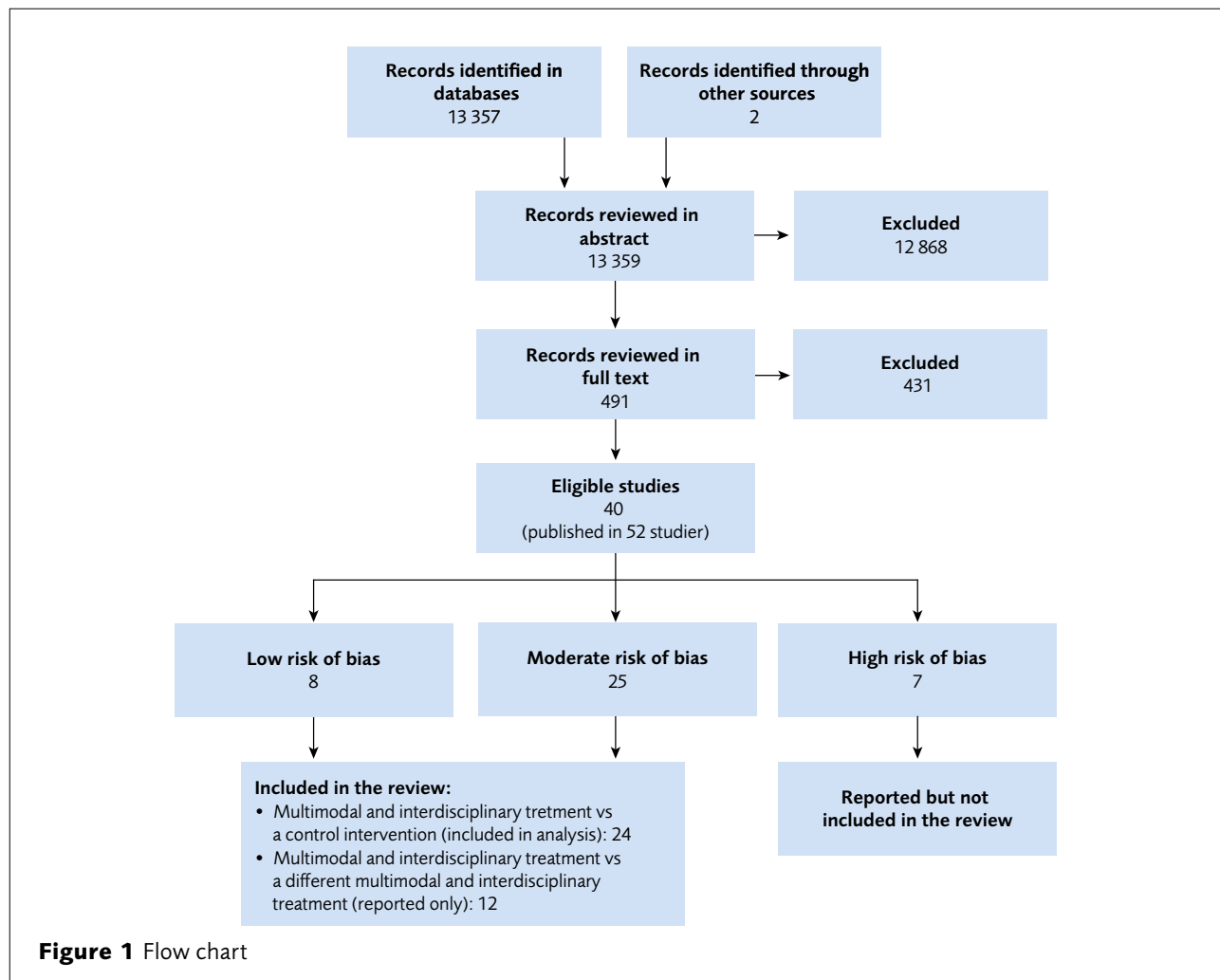
¹ Evaluation of the certainty of the evidence of a result according to GRADE: ⊕⊕⊕⊕ = High; ⊕⊕⊕○ = Moderate; ⊕⊕○○ = Low; ⊕○○○ = Very low (meaning that the trustworthiness of the result is very low and can't be used to evaluate the true effect).

² Risk of bias: Insufficient descriptions of the randomisation process and allocation of participants, insufficient information on blinding, remarks regarding measurement of outcomes and high attrition in some studies.

³ Imprecision: The body of evidence consists of a limited number of studies with few participants. Most of the results do not show a statistically significant difference between comparison groups.

⁴ Indirectness: Measured outcomes cover only one of several aspects of the ICF-component.

⁵ Inconsistency: The studies are too few to allow for judgement of inconsistency.



Health Economic Assessment

Cost efficiency was evaluated through a literature review and a calculation of costs based on a comparison of costs and effects of multimodal and interdisciplinary interventions compared to a common standard treatment strategy (consisting of single visits to physicians and physiotherapists).

Results from quantitative analyses of relevant health outcomes (quality of life, sick leave, and health care consumption) did not yield sufficient evidence and the calculation of costs was instead based on hypothetical effects on the outcomes. The finished model illustrate how effects on health and health care consumption will affect cost efficiency, and that cost efficiency improves as a function of time (how long the health effects of treatment can be maintained).

Conflicts of Interest

In accordance with SBU's requirements, the experts and scientific reviewers participating in this project have submitted statements about conflicts of interest. These documents are available at SBU's secretariat. SBU has determined that the conditions described in the submissions are compatible with SBU's requirements for objectivity and impartiality

Appendices

- Search strategies
- Excluded articles and articles with high risk of bias
- Characteristics of included studies
- Included articles health economy
- Studies with high risk of bias

The full report in Swedish

The full report in Swedish [Multimodala och interdisciplinära behandlingar vid långvarig smärta](#)

Project group

Experts

- Mathilda Björk, Ph D., Professor, Occupational therapist
- Monika Löfgren, Ph D., Physiotherapist
- Magnus Peterson, Ph D.
- Rikard Wicksell, Ph D.

SBU

- Anna Christensson, Project Manager
- Jessica Dagerhamn, Assistant Project Manager
- Susanne Johansson, Assistant Project Manager
- Caroline Jungner, Project Administrator
- Maja Kärrman Fredriksson, Information Specialist
- Anna Ringborg, Health Economist
- Anneth Syversson, Project Administrator

External reviewers

- Mari Lundberg, Ph D., Professor, Physiotherapist
- Hans Westergren, Ph D., Associate Professor

SBU Assessments no 341, 2022
www.sbu.se/en • registrator@sbu.se
Graphic Design: Anna Edling, SBU