INPLASY PROTOCOL

Corresponding author:
Alexander Schurz

alexander.schurz@bfh.ch

Author Affiliation:
Bern University of Applied Sciences.

Review Stage at time of this submission: Formal screening of search results against eligibility criteria.

Conflicts of interest: None declared.

Health Economic Evaluation of Weight Reduction Therapies for Overweight Individuals with a Musculoskeletal Diagnosis - A Systematic Review

Schurz, AP[1]; Walter, M[2]; Liechti, M[3]; Lutz, N[4]; Taeymans, J[5].

Review question / Objective: Are therapies that include weight loss strategies in addition to musculoskeletal interventions cost-effective in reducing pain and improving function in patients with overweight or obesity with a musculoskeletal diagnosis compared with musculoskeletal interventions alone?

Condition being studied: Full health economic evaluations which investigate weight reduction programs alone or in combination with musculoskeletal treatment for the treatment of overweight or obese individuals with a musculoskeletal diagnosis.

Information sources: Abstract, cost of illness studies, study protocols, congress proceedings, grey literature, study protocols or non-academic studies are not deemed relevant. In addition, systematic reviews and meta-analyses are excluded.

INTRODUCTION

Review question / Objective: Are therapies that include weight loss strategies in addition to musculoskeletal interventions cost-effective in reducing pain and improving function in patients with overweight or obesity with a musculoskeletal diagnosis compared with musculoskeletal interventions alone?

Rationale: Overweight and obesity are very common in the world. According to the World Health Organisation, 58.7 per cent and 23.3 per cent of adults over 18 in Europe are either overweight or obese. This condition is associated with various co-morbidities such as type 2 diabetes, cancer, cardiovascular disease but also musculoskeletal diagnoses. Studies show that lifestyle intervention with a focus on reduced caloric intake, increased physical activity and behavioural change programme seem to be effective in overweight/obese individuals with a musculoskeletal diagnosis (e.g. knee osteoarthritis, low back pain). However, it remains unclear whether this is also a cost-effective approach.

Condition being studied: Full health economic evaluations which investigate weight reduction programs alone or in combination with musculoskeletal treatment for the treatment of overweight or obese individuals with a musculoskeletal diagnosis.

METHODS

Search strategy:
1 exp obesity/ or body weight/ or obesity.mp.
2 overweight/ or adipos*/
3 weight loss/ or weight loss.mp. or intentional weight loss.mp.
4 obes*.tw.
5 (overweight or over weight or overeat* or adipos*).tw.
6 body mass index/
7 (weight adj3 (cycl* or reduc* or los* or maint* or decreas* or watch* or control* or gain* or chang* or increas* or diet*)).tw.
8 ((body mass index or bmi) adj3 (reduc* or maint* or decreas* or watch* or control* or gain* or chang* or increas* or diet*)).tw.
9 1 or 2 or 3 or 4 or 5 or 6 or 7 or 8
10 exp osteoarthritis/ or osteoarthritis/ or osteoarthritis, knee/
11 exp back pain/ or low back pain/
12 neck pain/
13 (backache or neckache).tw.
14 exp musculoskeletal pain/ or musculoskeletal diseases/
15 (osteoarthr* or Osteo* arthr*).tw.

16 sciatica/
17 neuralgia/
18 (dorsalgia or cervicalgia).tw.
19 ((cervical vertebrae or back or knee* or neck or spin* or hip* or lumb* or joint* or musculoske*) adj3 (pain* or ache* or arching or complaint* or stiff* or dysfunction* or disabil* or trauma* or disorder* or injury*)).tw.
20 (animals not (humans and animals)).sh.
21 coxarthr*.tw.
22 10 or 11 or 12 or 13 or 14 or 15 or 16 or 17 or 18 or 19 or 21
23 9 and 22
24 economics.af.
25 exp "costs and cost analysis"/
26 Economics, nursing/
27 economics, medical/
28 economics, pharmaceutical/
29 exp economics, hospital/
30 economics, dental/
31 exp "fees and charges"/
32 exp budgets/
33 budget*.ti,ab,kf.
34 (economic* or cost or costs or costly or costing or price or prices or pricing or pharmacoeconomic* or pharmaco-economic* or expenditure or expenditures or expense or expenses or financial or finance or finances or financed).ti,kf.
35 (economic* or cost or costs or costly or costing or price or prices or pricing or pharmacoeconomic* or pharmaco-economic* or expenditure or expenditures or expense or expenses or financial or finance or finances or financed).ab. /freq=2
36 (cost* adj2 (effective* or utilit* or benefit* or minimi* or analy* or outcome or outcomes)).ab,kf.
37 (value adj2 (money or monetary)).ti,ab,kf.
38 exp models, economic/
39 economic model*.ab,kf.
40 markov chains/
41 markov.ti,ab,kf.
42 monte carlo method/
43 monte carlo.ti,ab,kf.
44 exp Decision Theory/
45 (decision* adj2 (tree* or analy* or model*)).ti,ab,kf.
46 23 not 20
47 or/24-45
48 46 and 47.

Participant or population: This systematic review includes overweight or obese adults (Body Mass Index >25kg/m^2) aged 18 years and older with a musculoskeletal diagnosis including chronic conditions. Children, pregnant or early postnatal mothers are not considered.

Intervention: To be included a study needs to investigate a weight reduction therapy alone or in combination with a musculoskeletal diagnosis therapy evaluating the cost effectiveness of the intervention. Any surgical or medical treatments such as medication, reduction of alcohol, smoking cessation are not considered in this systematic review.

Comparator: Interventions aimed only at treating the musculoskeletal diagnosis without a weight loss programme.

Study designs to be included: Relevant study designs are any kind of full health economic evaluations such as cost effectiveness analyses (CEA), cost-utility analyses (CUA), cost-benefit analyses (CBA) or any single-study based health economic evaluation alongside a randomized-controlled trial (RCT) or cohort study. Model-based health economic evaluations are also considered. Abstract, cost of illness studies, study protocols, congress proceedings, grey literature, study protocols or non-academic studies are not deemed relevant. In addition, systematic reviews and meta-analyses are excluded.

Eligibility criteria: Abstract, cost of illness studies, study protocols, congress proceedings, grey literature, study protocols or non-academic studies are not deemed relevant. In addition, systematic reviews and meta-analyses are excluded.

Information sources: Medline, Embase, CINAHL, Econlit, Science Citation Index Expanded and Emerging Sources Citation Index accessed through Web of Science and Scopus. No grey literature or trial registers will be screened. After the screening process authors will be contacted in case of missing full text or data.

Main outcome(s): The target condition is the cost effectiveness of the treatment. Relevant effect measures are Incremental cost-effectiveness ratios (ICER), incremental costs-utility ratios (ICUR), net monetary benefit (NMB), benefit-cost-ratio (BCR) and return-on- investment (ROI)).

Additional outcome(s): No additional outcomes are defined.

Data management: The studies are screened (title/abstract, full text) by two independent researchers and checked for agreement with the inclusion criteria. A consensus meeting with a third investigator will be held to resolve disagreements in screening studies. Screening is performed using Rayyan QCRI, the systematic reviews web app. Two researchers extracted the data from the included studies independently in a created Excel spreadsheet. The usability of this is tested and adjusted using two studies. In case of discrepancies in the data extraction, a third person will be consulted in a consensus meeting. Data will be store on the Sharepoint of the university.

Quality assessment / Risk of bias analysis: The methodological quality of the studies will be assessed using the Consensus Health Economic Criteria List for health economic evaluations alongside randomized-controlled trials. Model based studies will be assessed using ECOBIAS - a 22 item checklist.

Strategy of data synthesis: Data will be synthesized depending on the number of studies included. If enough studies are included, benefit adjusted ICER, ICUR and return on investment will be calculated.

Subgroup analysis: If possible, a subgroup analysis will be done on the different musculoskeletal diagnosis.

Sensitivity analysis: If applicable, a sensitivity analysis is carried out.

Language restriction: No language limits are imposed on the search.

Country(ies) involved: Switzerland/ Germany/ Belgium.

Keywords: health economic evaluation - cost-effectiveness - cost-benefit analysis - weight reduction therapy - lifestyle intervention – overweight – obesity.

Dissemination plans: The study will be published in a peer-reviewed journal.

Contributions of each author:
Author 1 - Alexander Schurz.
Email: alexander.schurz@bfh.ch
Author 2 - Matthias Walter.
Author 3 - Melanie Liechti.
Author 4 - Nathanael Lutz.
Author 5 - Jan Taeymans.