**Article Full Title**

Manual therapy, exercise therapy, or both, in addition to usual care, for osteoarthritis of the hip or knee. 2: Economic evaluation alongside a randomized controlled trial

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**Paper Abstract**

Objective: To evaluate the cost effectiveness of manual physiotherapy, exercise physiotherapy, and a combination of these therapies for patients with osteoarthritis of the hip or knee. Methods: 206 Adults who met the American College of Rheumatology criteria for hip or knee osteoarthritis were included in an economic evaluation from the perspectives of the New Zealand health system and society alongside a randomized controlled trial. Resource use was collected using the Osteoarthritis Costs and Consequences Questionnaire. Quality-adjusted life years (QALYs) were calculated using the Short Form 6D. Willingness-to-pay threshold values were based on one to three times New Zealand’s gross domestic product (GDP) per capita of NZ$ 29,149 (in 2009). Results: All three treatment programmes resulted in incremental QALY gains relative to usual care. From the perspective of the New Zealand health system, exercise therapy was the only treatment to result in an incremental cost utility ratio under one time GDP per capita at NZ$ 26,400 (–$34,081 to $103,899). From the societal perspective manual therapy was cost saving relative to usual care for most scenarios studied. Exercise therapy resulted in incremental cost utility ratios regarded as cost effective but was not cost saving. For most scenarios combined therapy was not as cost effective as the two therapies alone. Conclusions: In this study, exercise therapy and manual therapy were more cost effective than usual care at policy relevant values of willingness-to-pay from both the perspective of the health system and society.

**NIH Risk of Bias Tool**

Quality Assessment of Controlled Intervention Studies

1. **Was the study described as randomized, a randomized trial, a randomized clinical trial, or an RCT**

Yes

1. **Was the method of randomization adequate (i.e., use of randomly generated assignment)?**

Yes

1. **Was the treatment allocation concealed (so that assignments could not be predicted)?**

Yes

1. **Were study participants and providers blinded to treatment group assignment?**

Yes

1. **Were the people assessing the outcomes blinded to the participants' group assignments?**

Yes

1. **Were the groups similar at baseline on important characteristics that could affect outcomes (e.g., demographics, risk factors, co-morbid conditions)?**

Cannot Determine, Not Reported, or Not Applicable

1. **Was the overall drop-out rate from the study at endpoint 20% or lower of the number allocated to treatment?**

Yes

1. **Was the differential drop-out rate (between treatment groups) at endpoint 15 percentage points or lower?**

Yes

1. **Was there high adherence to the intervention protocols for each treatment group?**

Yes

1. **Were other interventions avoided or similar in the groups (e.g., similar background treatments)?**

Cannot Determine, Not Reported, or Not Applicable

1. **Were outcomes assessed using valid and reliable measures, implemented consistently across all study participants?**

Yes

1. **Did the authors report that the sample size was sufficiently large to be able to detect a difference in the main outcome between groups with at least 80% power?**

Yes

1. **Were outcomes reported or subgroups analyzed prespecified (i.e., identified before analyses were conducted)?**

No

1. **Were all randomized participants analyzed in the group to which they were originally assigned, i.e., did they use an intention-to-treat analysis?**

Yes

**Key Finding #1**

The MOA Trial exercise physiotherapy and manual physiotherapy programs were cost effective relative to usual care within policy-relevant ranges of WTP per QALY from the perspectives of the New Zealand health system and society.

**Key Finding #2**

Early intervention to treating OA closer to initial symptom development could help slow the progression and prolong how long before the usual method of care (ex. joint replacement) is implemented.

**Key Finding #3**

**Key Finding #4**

**Please provide your summary of the paper**

This study shows that manual therapy or exercise therapy in addition to usual care was highly cost effective relative to usual care alone when considering the analyses from the cost perspective of both. The most cost-effective treatment in the perspective of the New Zealand healthcare system is exercise therapy, while the most cost-effective treatment from a social perspective is manual therapy. Both of these perspectives are made according to the estimates from the QALY outcome (quality-adjusted life years). Because of how delayed action is between the initial presentation of OA and its actual treatment, a recommendation for change could be in order to try and implement treatment for OA sooner rather than later to try and delay the progression of pain and disability.

**Please provide your clinical interpretation of this paper. Include how this study may impact clinical practice and how the results can be implemented.**

Exercise and manual therapy are more cost-effective treatments than the usual care for treating OA, which usually includes a joint replacement surgery at some point. A recommendation or policy change that can be made is for PTs to be allowed to intervene and treat hip or knee OA preventatively. If treatment can start earlier, closer to when the initial symptoms present, then the progression of the pain and disability can be potentially slowed.