

## Peer Review Report

# Review Report on Improvement of pain symptoms in musculoskeletal diseases after multimodal spa therapy in the Austrian Gastein valley – a study based on longitudinal registry data

Original Article, Int J Public Health

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### EVALUATION

#### **Q 1** Please summarize the main findings of the study.

Complementary treatments of patients with rheumatic musculoskeletal diseases (RMD) with balneotherapy approaches are increasingly prescribed. Even though several trials report positive effects on pain reduction, the evidence is still scarce, mostly because of the lack of placebo-controlled trials. The approach of the authors to evaluate register data might nevertheless add some more evidence to the beneficial effects of spa therapies, including those with the radioactive noble gas radon. The authors report/confirm with their analyses that, in part in dependence of the disease, that the average pain score in rest and in motion decreases after spa therapy.

#### **Q 2** Please highlight the limitations and strengths.

See Q3.

#### **Q 3** Please provide your detailed review report to the authors. The editors prefer to receive your review structured in major and minor comments. Please consider in your review the methods (statistical methods valid and correctly applied (e.g. sample size, choice of test), is the study replicable based on the method description?), results, data interpretation and references. If there are any objective errors, or if the conclusions are not supported, you should detail your concerns.

Even though the presented results confirm pain reducing effects of balneology, a major drawback of the presented data is lack of clarity how many of the analyzed patients did receive radon therapy and how many patients were exposed to radon bath and how many in the gallery. Generally, the analyzed collected is only described very superficially and therefore does not allow any conclusions from the point of the reviewer. Regarding the subgroup analyses with the respective diseases, the number of patients varies strongly and it is very vague to show everything together in the two figures. Even the heading is already misleading, e.g. what means scientifically “including low-dose radon”; were most of the patients not exposed to radon at all?

### PLEASE COMMENT

#### **Q 4** Is the title appropriate, concise, attractive?

The heading is misleading, e.g. what means scientifically “including low-dose radon”; were most of the patients not exposed to radon at all?

#### **Q 5** Are the keywords appropriate?

Yes.

#### **Q 6** Is the English language of sufficient quality?

OK.

**Q 7** Is the quality of the figures and tables satisfactory?

No.

**Q 8** Does the reference list cover the relevant literature adequately and in an unbiased manner?)

Yes.

#### QUALITY ASSESSMENT

**Q 9** Originality

**Q 10** Rigor

**Q 11** Significance to the field

**Q 12** Interest to a general audience

**Q 13** Quality of the writing

**Q 14** Overall scientific quality of the study

#### REVISION LEVEL

**Q 15** Please make a recommendation based on your comments:

Major revisions.