Reviewer's report
Title: The Long-Term Economic Impacts of Arthritis through Lost Productive Life Years: results from an Australian Microsimulation Model

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Reviewer: Yanmin Zhu

Reviewer's report:
The authors presented an important study on the projection of the indirect costs of arthritis due to lost productive life years. The manuscript was well written and carefully designed. The study results provide insights into substantial indirect costs of arthritis in the next decade in Australia.

However, I think there are some parts that still require further clarification/discussion by the authors. Specifically,

(1) Although the authors provided citation for the microsimulation model, Health&WealthMOD2030, it would be better if the authors could briefly described the set up of the model. This will help the readers to follow the analysis of this study.

(2) Similarly, the authors used the SDACs 2003 and 2009 survey for the analysis. Although the authors did reweight the data to account for relevant covariates including disease severity, I was wondering if there is any information on the disease severity of arthritis in the survey. This is due to the concerns that the impact of arthritis on occupational disability is largely influenced by the disease progression. If the current analysis couldn't not control for the disease severity, the projected estimates could be influenced. A description table on the patients with arthritis in the survey in each year would be informative.

(3) The authors provided their reasoning for the selection of parameters used in their analysis; however, I was wondering if the authors have considered conducting a sensitivity analysis to test the robustness of their study results.
In the discussion section, the authors stated that the questions in the SDACs were designed in a approach that could allow capture of "causal relationships". I think this statement would lead to misunderstanding among the readers. I suggest the authors reword the sentences to simply discuss whether the questions are reliable and valid to correctly measure the main reasons for productivity.

In the discussion section, the authors discussed about the exiting treatment/intervention/management to improve the productivity of the patients with arthritis. It would be great if the authors could further the discussion about the cost of those current interventions in the context of the projected indirect costs.

Finally, I would also like to suggest the authors keep the unit of cost consistent using AU$ throughout the abstract and the entire manuscript.

**Are the methods appropriate and well described?**
If not, please specify what is required in your comments to the authors.
Yes

**Does the work include the necessary controls?**
If not, please specify which controls are required in your comments to the authors.
Yes

**Are the conclusions drawn adequately supported by the data shown?**
If not, please explain in your comments to the authors.
Yes

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