Reviewer’s report

Title: Factors affecting the quality of life after total knee arthroplasties: a prospective study

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Reviewer: Jan Van der Meulen

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This is a paper following up about 200 patients for one year who underwent a total knee replacement in two Greek centres. Patient reported data about function, pain and health-related quality of life data were collected preoperatively and at five points in time after the operation.

I have a number of general comments (MAJOR COMPULSORY REVISIONS).

1) This is a descriptive study. As a result, it is not immediately obvious what question(s) the authors aim to answer. While reading I thought that the main question was about the differences in POSTOPERATIVE outcomes according to a number of patient characteristics (e.g. age, sex, BMI, social support) while adjusting for preoperative difference. The results could have been better presented. At the moment, there is a table highlighting PREOPERATIVE differences according to patient characteristics and in the text a summary of POSTOPERATIVE differences. I recommend that there is at least one table with POSTOPERATIVE differences according to patient characteristics.

2) I also missed in the Results section, a description of the multivariable analyses of the POSTOPERATIVE differences. For example, I would have liked to see what the difference is in outcome(s) between men and women adjusted for the other PREOPERATIVE characteristics.

3) There seems to be a discrepancy between the methods as presented in the Methods and Results sections. I didn't see how the presented results were the product of "general linear modelling for repeated measures and post-hoc tests with Bonferroni's corrections".

Minor comments (MINOR ESSENTIAL AND DISCRETIONARY REVISIONS):

4) I'm surprised that the definition of "urban" and "rural" is linked to the number of inhabitants in a population rather than the population density (page 5).

5) I would have liked to see how many patients did not meet the inclusion criteria. This would help to judge the generalisability of the results. Now we only know that 224 were “eligible” (page 5).

6) Some experts would object against the use of face-to-face interviews when collecting the patient-reported outcome measures. Their argument is that some of the instruments used are supposed to be self-administered without any
involvement of a researcher or clinician.

7) Level of education is dichotomised into "primary" or "less/ otherwise". I thought that this was unclear (page 7).

8) Bonferronni’s correction for multiple comparisons is mentioned. How was this applied and how is the correction represented in the description of the results?

9) There are a lot of detailed figures included in the text of the Results section that repeat results already presented in the tables. I would have preferred to see the headline results in the text helping the reader to digest the tables rather than a repetition of actual figures.

10) In the Discussion, the pattern of improvement of outcomes over time is highlighted (greatest improvement in first 3 months with smaller but ongoing improvement thereafter (page 11). This demonstrates again that we need to know what the question(s) are that the authors aim to answer: differences in outcomes according to preoperative patient characteristics or pattern of recovery of outcomes according to time after operation? If both these questions are relevant I would separate them out and deal with them in two sections.

11) The authors also mention in the Discussion that BMI does not have a significant effect on outcomes. I would have liked a discussion about the power to detect his effect. The study population is small and dividing patients in two groups (BMI smaller or larger than 30 kg/ m^2) may not be the best way of investigating the impact of body mass.

12) In the Discussion, a number of issues were brought up and in some cases I thought that the authors were at risk of overinterpreting their findings. An example in this context is the discussion of the relationship between depression and pain after the operation (page 13).

**Level of interest:** An article of importance in its field

**Quality of written English:** Acceptable

**Statistical review:** Yes, and I have assessed the statistics in my report.

**Declaration of competing interests:**

'I declare that I have no competing interests