Reviewer's report

Title: The association of BMI and knee pain among persons with radiographic knee osteoarthritis: A cross-sectional study

Version: 2 Date: 9 November 2008

Reviewer: Annette W-Dahl

Reviewer's report:

The authors have corrected the manuscript and it is much easier to follow and read now. However I have still some minor questions and one issue that need major compulsory revision. Please see below.

1. In the abstract, result section you have forgotten to change the sentence starting with “Unadjusted and adjusted …”. (minor essential revision).

2. Was the logistic regression analysis multiple or stepwise? Please clarify. Did you analyze each BMI group using separate logistic regression analysis or was all BMI groups included in one logistic regression analysis? (discretionary revision)

3. In the result part “Evaluation for potential confounders showed no significant difference…..”. Evaluate or control for potential confounders you control for them using for example a regression analysis and you have only done that for age, gender, RKOA grade and BMI but not for different diseases, occupation and education. You don’t know how these factors affect the results. What you actually did was to compare the two groups (Pain and No pain) regarding number or percent of subjects in each group with different diseases, occupation and education. If there is a statistical significant difference between the two groups are not interesting when the statistical difference depends on several things. For example if you have enough subjects included you can have statistically significant difference of one year between the groups and that’s not clinically relevant. What’s interesting is if there is a clinical relevant difference between the groups. Write instead for example…. “There were no clinically relevant differences regarding different diseases, occupation and education between the two groups”. The difference in share of women and BMI between the groups was controlled for in the analysis. In table 1 you don’t tell us if the different diseases are percent or n. (minor essential revision)

4. The last sentence page 7 starting “Based on…… is more a sentence for the method section. (discretionary revision)

5. There is an important difference between odds and risk. Odds Ratio (OR) can be used as an approximation of corresponding Risk Ratio (RR), but only at low risk. OR and RR are only equal when the figure is 1 in all other cases the OR shows a higher figure. To use the word risk ratio in the discussion part page 8, line 3 is not what you have done and line 6, over 8 times the risk of knee pain is
not true (please see below).

An example: When you take out a card of a deck of cards the probability it will become a spade is 1/4. The odds is on the other hand 1/3 (read one against three).

And an example from your study: the group Obese III (number of subjects = 33) and Pain (number of event= 28) odds is 28/5 = 1.6 and the risk is 28/33=0.85.

The group Normal BMI (number of subjects=155) and Pain (number of event=66) odds is 66/89=0.74 and risk is 66/155=0.43. The risk ratio (RR) is the risk of Obese III/ risk of Normal BMI; RR=0.85/0.43=2. The odds ratio (OR) is the odds of Obese III/odds of Normal BMI; OR=1.6/0.74=7.4.

You have stated that its OR you have calculated and that’s correct and enough but don’t interpret OR as risk. (major compulsory revision)

6. And the figures are not correct in the text (Results last 2 lines OR=1.7 respectively OR=8.6) comparing to table 3 (adjusted OR=1.6 respectively adjusted OR=7.5). (minor essential revision)

**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'