

Reviewer's code: 00505361

Dear Authors The authors of this manuscript evaluated the association between vitamin D and knee osteoarthritis in the younger age group. I have a number of criticisms as follows; # Major points 1.This was a case control study not observation study. 2.No details regarding how to select case and control and how to match.

Author: As suggested by the reviewer, the study was mentioned as case control study. Matching was done through propensity score matching.

3. No detail in evaluation process either clinical. lab or radiography (who, what and how)

Author: The OA knee patients were evaluated clinically [swelling, tenderness and range of motion, Knee injury and Osteoarthritis Outcome Score (KOOS)] by an orthopedic surgeon [23]. The anteroposterior and lateral radiographs of the knee joints were taken, and the disease severity was classified by Kellegren-Lawrence stage. The details of laboratory values are already given.

4. No detail how to select variable into the model and which technique use for Logistic regression analysis. 5. potential confounder such as socioeconomic status, smoking, BMI, occupation should be collected and adjusted.

Author: Since the age, socio economic status and sex influences the vitamin D status of the individuals, these variables were selected for logistic regression. Post logistic regression analysis for age, sex and socio-economic status, the odds ratio was 2.84 (CI 1.63 – 4.90, $p < 0.001$).

Because of cultural rituals, smoking habit is very much infrequent in our society. Very few patients had (4 from OA knee group and three from healthy group) smoking habit and the number of cigarettes smoked by them was less than 3/day. Hence we did not evaluate the effect of smoking.



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Regarding BMI, it was clearly mentioned in the inclusion criteria that BMI of <30 were only included. Hence BMI was not evaluated. Occupation history was not asked.

6 Additional limitations should be added included control group may not be perfectly matched.

Author: Mentioned in the revised manuscript.

7 Sample size may not be enough and power analysis should be calculated.

Author: As we have obtained significant results, it is assumed that the study is adequately powered. However, as per the reviewer's suggestions, a post-hoc power analysis was conducted. The power of the study for the given sample size was found to be 98%

Minor point Reference number 2,4,6,9,12,17,22 must be rechecked for format

Author: Corrected. The English has been corrected.