Reviewer's report

Title: The effect of educational level on bone mineral density in postmenopausal women

Version: 1 Date: 22 March 2004

Reviewer: Magnus K Karlsson

Reviewer's report:

General

GENERAL COMMENTS TO THE AUTHORS

This is a paper trying to evaluate the effect of educational level on bone mineral density in postmenopausal women. There are problems with this study. The authors describe the effect of educational level on losses in BMD, a statement that could not be done, as this study does not present any prospective data. Also, the authors conclude that educational level has a considerable effect on BMD. However, when looking at the determination coefficient, educational level has at best a 4% influence on the variance in BMD. This cannot be regarded as considerable effect. As a reader it is difficult to follow how the patients were included. Also, it is described in the material section how alcohol consumption, smoking habits, caffeine intake were estimated. However, in table 1 the intake of these nutritional elements is presented in a different way. In table 1, the authors describe physical activity, but nowhere in the material section could we find how physical activity was estimated and divided in the different groups.

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Major Compulsory Revisions (that the author must respond to before a decision on publication can be reached)

SPECIFIC COMMENTS

Page 2, paragraph 1, line 1
This study describes the influence of educational level on BMD. However, the study can only at best present an association between the two variables.

Page 2, paragraph 4
The authors describe educational level has a considerable effect on BMD. However, when looking at determinant coefficient, at best educational level influence the variance in BMD by 4%, this is not a considerable effect.

Page 2, paragraph 4, line 1-3
The authors describe the importance of educational level for loss in BMD and that increased education levels would increase the loss in BMD. This could not be stated in a cross sectional study like this.

Introduction

Page 3, paragraph 1 and 2
Please provide references for the statement done in the first paragraph.

Page 3, paragraph 3, line 6
What does the authors mean by the abbreviation OP? This is not described in the paper.

Page 3, paragraph 5
The authors describe risk factors for osteoporosis, such as oestrogen exposure, reproductive factors and physical activity. However, this is generally not regarded as risk factors for osteoporosis, if anything protective factors for osteoporosis.

Subjects and methods

Page 3, paragraph 1, line 3
1 / 32 women were excluded due to several reasons. However, by excluding individuals with diseases, this should if the discussion in the paper is sound also exclude women within the lower socioeconomic groups. Could this effect the data?

Page 4, paragraph 2, line 2
Here the authors come back to the exclusion criteria’s. It seems as they measured the 569 women, and then adapted this exclusion criteria. However, the authors describe 6 different exclusion criteria’s where some were rather similar to exclusion criteria described on page 3. However, the exclusion criteria do not overlap each other so for the reader it is unclear if the women were included in 2 different steps or if these exclusion criterions described refer to the exclusion of women before the actual measurements were done. Please clarify.

Page 4, paragraph 3, line 2
What does the author mean by abbreviation OP?

Page 4, paragraph 3, line 3
The authors describe a T-score. Nowhere does the author explain how they got this T-score, was it young women measured in the same area or was it T-score that appeared from the machine, if using the normal values in the machine they would have a different referent population than Turkish woman. Please clarify.

Page 4, paragraph 4
The authors describe how cigarette smoking was assessed. However, this is done a couple of lines previous in the material section, so why repeat the description?

Statistical analysis

Page 5, paragraph 1, line 4
I guess the statistical significant was set if the p-value was less than 0.05.

Results

Page 5, paragraph 2
Nowhere in the result section do the author refer to the table. When I as a reader evaluate this paper, the tables suddenly appear the end of the paper. Please provide references to the papers in the result section.

Page 5, paragraph 2, line 2
When reading number of abortions, pregnancy and duration of lactation it is unclear if the authors provide any data. Then when you finished the manuscript you suddenly see the tables and here they are raw data. However, the authors cannot provide data as regarding numbers of abortions and numbers of pregnancies with decimals. Either you had an abortion or not, you could not have 0.3 abortions. This should also be considered when doing the statistics, so that an adequate statistical test is used.
Discussion

Page 5, paragraph 2
The authors describe association with education and osteoporosis. This was not tested in this manuscript, only an association between educational level and level of BMD. However, for the reader it is unclear how many reached the point to be defined osteoporotic women.

Page 6, paragraph 2, line 4
The authors infer that multiple pregnancies and extended lactation could be of importance for low bone mass. However, virtually no data in the literature support this. Additionally in the next line the authors actually deny their own hypothesis. Please rewrite.

Page 6, paragraph 3, line 4
Here the authors describe birth rate and breast-feeding may be associated with educational level. However, this was not the purpose of this study. The authors also describe a calcium intake in the highest educational group, however, there are no data that support this, evaluated by statistics.

Page 6, paragraph 4
Once more the author describe the importance of osteoporosis in the educational level but no data is provided as regard how many women that were osteoporotic. The authors also describe risk to higher birth rate, excessive breast-feeding, but, if anything, this is regarded as protective against fracture and that women with higher birth rate and excessive breast-feeding have higher bone mass if anything compared to nulliparous women. In contrast insufficient calcium intake is generally regarded as risk factor for osteoporosis.

Page 7, paragraph 2
The conclusion is not supportive by the data in this study. See comments in the abstract.

Table 1
The authors infer that this is personal characteristic among 569 women with osteoporosis. Did all measured women have osteoporosis? Also, what does the authors mean by figures within brackets, I guess it is percentage of women within each group. In the exclusion criterion in the material section the authors describe that women with amenorrhea, operation with hysterectomy and oopherectomy and women on HRT were excluded, still they here present data from these women. For the reader it is unclear if they were included or not in the comparison. This is further supported in table 2 and 3 were the authors describe that all 569 women were included. Furthermore, in table 1 the authors describe physical activity but nowhere in the paper can we find any description how physical activity was assessed and how the different subgroup actually were stated. Furthermore, smoke, coffee, alcohol is described in a different way than in the material section. For example, cups of coffee were assessed no drinkers, 0-1 cups or 2 or more cups. However, here in the table its described as 2 cups or less or 3 cups or more. It is difficult to understand how they accessed the intake of these variables.

Table 2
Number of abortions and pregnancies cannot be presented with decimals, either they had an abortion or not.
Minor Essential Revisions (such as missing labels on figures, or the wrong use of a term, which the author can be trusted to correct)

Discretionary Revisions (which the author can choose to ignore)

What next?: Reject because scientifically unsound

Level of interest: Too insignificant to warrant publication in any journal

Quality of written English: Acceptable

Statistical review: No

Declaration of competing interests:

I answer no to all four questions