Author's response to reviews

**Title:** Effects of Multiparity and Prolonged Breast-Feeding on Maternal Bone Mineral Density: A Community-Based Cross-Sectional Study

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**Author's response to reviews:** see over
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The Editor-in-chief, BMC Women’s health,

Dear Sir,

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We thank you for your interest in our paper and the valuable suggestions for improvement of it. We have addressed all comments from the editorial office and the reviewers on the following pages.

The lines and paragraphs refer to the revised manuscript unless otherwise stated.

In addition to the changes suggested by the editorial office and the reviewers, we have acknowledged an additional two research assistants who assisted us during data collection, in the acknowledgements section.

Yours sincerely,

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Editorial comments

1. Please clarify informed consent. Informed consent must also be documented

Authors’ reply
Prior to the data collection, we obtained informed consent from the participants. The following sentence has been added to manuscript on Page 5, para 4, line 3-4
“Informing consent was obtained from each of the participants prior to the study.”

2. Please also ensure that your revised manuscript conforms to the journal style

Authors’ reply
We have now changed the manuscript format in accordance with style of BMC Women’s Health.

Reviewer 1.
Reviewer's report:
As the authors themselves admit in the discussion, since this is a retrospective study, there is a recall bias, especially in the subjects who are elderly (patients over 90 years have been included). This might contribute to the fact that there was no significant association between parity +breast-feeding and bone mineral density.

1. Major Compulsory Revision- In the section STUDY SAMPLE, the authors state: "When a child was reported to have been breast-fed for more than 24 months, a maximum of 24 months was noted as it was assumed that intermittent breast-feeding beyond 24 months had no substantial effect on maternal bone metabolism." HOWEVER in the section STATISTICAL ANALYSIS, they state that women were divided according to the total duration of breast-feeding (never breast-fed, 1-48 months, 49-96 months, more than 97 months). This needs to be clarified. This may be the reason why no differences were found in age-adjusted BMD when groups of women with different total durations of breast-feeding were compared.

Reply to reviewer
In this paper we have defined a maximum duration of breast-feeding per single child as 24 months, since some women reported breast-feeding one or more of their children a period exceeding 24 months. By 2 years of age almost all children were breast-fed only few times a day while they were fed with three meals of solid meals a day. When an individual mother had more than one child the periods of breast-feeding per each child were summed up to calculate the total period of breast-feeding throughout the life, which could of course exceed 24 months. This total period of breast-feeding was used to classify women as described in Statistical analysis section of the manuscript.
We accept that the distinction between these two definitions was unclear in the original manuscript and we have modified accordingly in this version.

Changes made in the manuscript:
The following section was removed from section “Study sample” (Page 4 para 2 to page 5 para1) and placed in “Statistical analysis” section (page 6 Para 1, line 3-8).
“When a child was reported to have been breast-fed for more than 24 months, a maximum of 24 months was recorded as it was assumed that intermittent breast-feeding beyond 24 months had
no substantial effect on maternal bone metabolism. Almost all children, by 2 years of age, were weaned and receiving solid meals at least three times a day. In the case of women with more than one child the duration of breast-feeding for each child were summed to calculate the total duration of breast feeding.”

Reviewer's report- 02

The AA evaluated BMD values in a group of elderly women and divided them in different groups according to the n. of children and duration of breast feeding. Their results suggest that either variables (multiple pregnancies and long total duration of breast-feeding) are not essential in determining BMD.

1). Major Compulsory Revisions
The question posed is well defined but other BMD determinants are not defined: (i) age at menopause, years since menopause, (ii) OCs, (ii) HRT, calcium supplements. These data should be provided, and the statistical analysis should be fully reported in the manuscript

Reply to reviewer
1.i) Age at menopause, years since menopause: - There was no difference in age of menopause among the groups. Although there was a difference in duration since menopause, this was abolished when adjusted to age. Age was, as might be expected, the strongest determinant of BMD. We have made following changes in the Statistical analysis section and in the results section to more fully report the data as follows.

In Statistical analysis section
- We have added additional information to the sentence on page 6 para 2 Line 1-3. “Analysis of covariance (ANCOVA) was used to adjust for differences in age, age of menopause, duration since menopause, BMI and duration of breast-feeding or number of childbirths.”

In Results section
- We have added the following sentence to page 6, para 3, lines 2-3. “Mean (SD) age of menopause and duration since menopause of participants were 47.8 (4.1) years and 16.6 (9.5) years respectively”

- We have added data relating to Age of Menopause and duration since menopause to Table and Table 2.

- We have added additional information to the sentence on page 7 para 2 Line 1-2. “Women who had borne 5 children or more were older than the other women (p<0.001) and had a longer duration since menopause (p<0.01) (Table 1)”

- We have added additional information to the sentence on page 7 para 3 Line 2-3. “These results remained unchanged when adjustments were made for age, BMI, and total duration of breast-feeding (data not shown).” Was changed as “These results remained unchanged when adjustments were made for age, age of menopause, duration since menopause, BMI, and total duration of breast-feeding (data not shown).”

In page 7 para 3 line 2 to page 8 para 1 line 1.
- We have added additional information to the sentence on page 7, para 4 line 2 to page 8 para 1 line 1.
  “Women who had breast-fed for a total period of >97 months were older than women with shorter total periods of breast-feeding (p<0.001) and had a longer duration since menopause (p<0.001) (Table 2).”
- We have added additional information to the sentence on page 8, para 2 line 2 to 4.
  “These results remained unchanged when adjustments were made for age, age of menopause, duration since menopause, BMI, and number of children (data not shown)”

1. ii) Oral contraceptive pills
Only 4 women have taken hormonal contraceptives (3 OCPs and 1 Depo Provera) and this number is too small to study the effect on BMD. For clarity we have included the following sentence in the results section.

In page 7, para 1, line 3-4.
“Only 4 (1.9%) women had used hormonal contraceptive methods”

1. iii) HRT and calcium supplements:
Exclusion criteria, in this study included women who have taken any medication known to cause changes in bone metabolism such as bisphosphanates, hormone replacement therapy, oral corticosteroids, thyroxin, vitamin D preparations, pharmacological doses of calcium, and thiazides. As a consequence, there were no women taking HRT, or calcium supplementation in this cohort. Because of it, there were no women taken hormone replacement therapy or calcium supplements in this study sample. However, by mistake bisphosphanates and hormone replacement have been removed from the list in the original manuscript. We apologize for it and included in the current version.

Additional information added to the sentence in Study Sample section on page Page 4 para 2 lines 11-13.
“Women who had taken medications such as bisphosphanates hormone replacement therapy, oral corticosteroids, thyroxin, vitamin D preparations, pharmacological doses of calcium, and thiazide diuretics were also excluded”

2. English Language:
We have looked for the English language and corrections were made accordingly.