Author's response to reviews

Title: Relationship between participation in leisure activities and constraints on Taiwanese breastfeeding mothers during leisure activities

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Author's response to reviews: see over
Dear BMC Public Health Editor and staff,

We would like to submit a revised version of our manuscript, "Relationship between leisure participation and leisure constraints of Taiwanese breastfeeding mothers:" to BMC Journal of Public Health.

We would like to thank you, Dr. Yuko Nakao, and Dr. Kingsley Agho for the very helpful and detailed feedback. We have organized responses, point-by-point, in accordance with the reviewers' comments. We have amended the manuscript as per your instructions.

We believe this manuscript addresses a very important public health issue, especially for women. We hope that we have adequately addressed the reviewers' comments and that this meets with the editor's satisfaction. If any further clarification is required, please feel free to contact me at any stage. I look forward to receiving a response at your earliest convenience.

Sincerely,

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**Reviewer:** Yuko Nakao & Kingsley Agho

**Major Compulsory Revision**

1. **Content**

   Too many points are being made, which complicates the manuscript. Improved organization of points is recommended. I assume the researchers' primary objective is to identify factors that constrain leisure activities among lactating women, so I recommend clearly stating the preferences and status of participation regarding actual leisure activities and the responses of mothers perceived as being constrained to the 37 items.

   Thank you for the insightful comment. The MS does have a wealth of information which might be complicated for the readers. We re-organized the MS and emphasized breastfeeding mothers’ leisure preferences, actual participation and constrains on their participation.

   In addition, t-test are further conducted in order to examine is there any difference of leisure constraints in terms of their breastfeeding practice and are added in table 2 and in the manuscript.

2. **Concretely measure**

   While keeping Tables 1 and 2 intact, I recommend an examination of correlations, as opposed to comparisons, between Leisure Participation and Leisure Preference in Table 3 because the scale items differ between them. I believe a higher correlation would indicate a greater ease of participation.

   The bi-variate Pearson Correlations for ten types of leisure activities have further examination with added data in Table 3. The results show that leisure preferences and leisure participation significantly correlate. Although, the reviewer suggested that higher correlation indicating a greater ease of participation, the paired t-test shows that the differences between preferences and actual participation for all ten types of leisure activities are significant. The preferences for leisure activities of breastfeeding mothers are significantly higher than their actual participation. That is, gaps exist between preferences and actual participation.

   I do not think Table 4 is necessary; it would be sufficient to explain its contents within the text. The Figure can also be omitted as long as the correlations are shown in Table 3.

   Table 4 remains in the MS because it provides the detailed information of the Action Group and the Contemplation Group for the audience’s comparison.
Figure 1 also remains because it further examines the differences between leisure preferences and participation in four quadrants.

Also, I would personally find it interesting if you created a new Table 4 in which you divided the four items of Breastfeeding Practice into “From breastfeeding directly” and the other 3 items and compared the 10 items of actual leisure activities between scores of <2 and #3 on the action scale. It would be interesting to see whether differences are apparent in leisure participation between lactating women who only breastfeed directly and those who do not.

Thank you for the suggestion. Following the suggestion, the comparison includes the differences between lactating women (who only breastfeeding “directly” and all other options in terms of leisure participation in ten different types of leisure activities. Although some significant differences exist among two groups, a trend is not apparent. The table in the Appendix contains the results from analysis.

1. In table 4 the percentage of exclusive breastfeeding (EBF) from 4 to 6 months seems to be exceptionally high (84.2 and 81.2) and I am very worried about this because EBF decreases as the child's age increases. From the brief summary table on EBF, you provided in your response to review, the rate of EBF was 36.2% and 26.3% for 4 and 6 months respectively which supports previous research that indicated that EBF decreases as the child's age increases. I would like you to check the values but I think, it makes sense if the values were swap around.

The figures for the variable, exclusively breastfeeding, is correct, since currently, approximately 80% of respondents reported feeding their babies only breast milk exclusively. The rate of exclusively breastfeeding did decrease as indicated in the last variable, breastfeeding duration. Table 4 shows that after 12 months, the percentage drops from 35% to 15%.

2. On point 3 of my question, In statistics, a sample size of 415 cannot be regarded as large. Add values for median with 25th and 75th percentiles in table 2 and reported the correlation coefficient in the text (the table is very busy) - for example, the correlation values for intrapersonal were high and ranged from 0.84-0.87.

Thank you for the comment agreeing that the sample size of 415 is not large, but as explained in the earlier response to reviewers' comment, the
sample of 415 is, indeed, sufficient. The earlier response is:

Given that the 2010 census indicates 166,886 newborn babies in Taiwan, and the breastfeeding interval of four months, postpartum, was 53.6%, the targeted population for this study is 89451. The minimum sample size required with a 95% confidence level is 382. The analysis uses 415 responses, after eliminating invalid respondents and those not meeting the study's criteria of breastfeeding babies for more than four months.

The sample size calculation uses the equation suggested by Wu (2009):

\[
\frac{N}{n} = \alpha \frac{N \times \alpha}{k^2} \times \frac{1}{1 - P}
\]

\( n = \) minimum sample; \( N = \) target population; \( P = 0.5; k = 1.96 \)

吴明隆（2009）。SPSS操作與應用：問卷統計分析實務 (2nd ed.)。臺北市：五南。

### Minor Essential Revisions

**Regarding Table 1**

1. There is only one person under "Age of youngest children: 7-12 years". Is it meaningful to show this data? If divisions can be made in the 0-6 years age group, please indicate the divisions and numbers.

   Thank you for the comment. Unfortunately, the original questionnaire did not provide for the age of youngest children as a response category at narrower intervals.

2. The total number of individuals does not add up to 415 for Age or Job. I recommend specifying the number of individuals without data as "unknown" and writing "Total: 415" at the top of Table 1.

   Thank you for the suggestion; revision appears in Table 1.

3. Please fully explain the Five-point of Preference.

   Respondents rated their preferences (from strongly dislike to strongly like) for each type of leisure activity on a five-point Likert scale. Modification to the text clarifies the point:

   Respondents rated their preferences (from strongly dislike to strongly like) and actual participation frequencies (never, seldom, sometimes, often and always) for each type of leisure activity on a five-point Likert scale.
Thank you for the suggestion. Examples for each type of leisure activities appear in the section regarding the research instrument. The revised section reads:

This section is a modification of the study by Wu [42] of the typologies of women's participation in leisure activities, which includes ten types: shopping (e.g. grocery shopping), children-related (e.g. activities associated or done with children), outdoor recreation (e.g. hiking, camping), intellectual activity (e.g. language learning, going to the library), indoor exercise (e.g. bowling, badminton), entertainment (e.g. going to pubs, watching movies), social activity (e.g. clubs, religious activities, banquets), art (e.g. painting, calligraphy), competition (e.g. Taekwondo), skill-related (e.g. swimming, golfing), and others. Respondents rated, on a five-point Likert scale, their preferences (from strongly dislike to strongly like) and actual participation frequencies (never, seldom, sometimes, often and always) for each type of leisure activity.
## Appendix Table

Mean Differences between Directly Breastfeeding Mothers and Other Practices for Various Leisure Activity Participation

<table>
<thead>
<tr>
<th>Participation in Leisure activities</th>
<th>Breastfeeding practice</th>
<th>Mean (S.D.)</th>
<th>t value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shopping</td>
<td>Breastfeeding directly (N=168)</td>
<td>3.11(±.948)</td>
<td>-0.419</td>
</tr>
<tr>
<td></td>
<td>All other practices (N=247)</td>
<td>3.07(±.892)</td>
<td></td>
</tr>
<tr>
<td>Children-related activity</td>
<td>Breastfeeding directly (N=168)</td>
<td>3.63(±1.197)</td>
<td>-2.198*</td>
</tr>
<tr>
<td></td>
<td>All other practices (N=247)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Outdoor recreation</td>
<td>Breastfeeding directly (N=168)</td>
<td>3.37(±1.147)</td>
<td>-4.024***</td>
</tr>
<tr>
<td></td>
<td>All other practices (N=247)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intellectual activity</td>
<td>Breastfeeding directly (N=168)</td>
<td>2.78(±1.097)</td>
<td>-2.825**</td>
</tr>
<tr>
<td></td>
<td>All other practices (N=247)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Indoor exercise activity</td>
<td>Breastfeeding directly (N=168)</td>
<td>2.36(±0.986)</td>
<td>-1.062</td>
</tr>
<tr>
<td></td>
<td>All other practices (N=247)</td>
<td>2.26(±1.038)</td>
<td></td>
</tr>
<tr>
<td>Entertainment</td>
<td>Breastfeeding directly (N=168)</td>
<td>1.98(±0.881)</td>
<td>1.462</td>
</tr>
<tr>
<td></td>
<td>All other practices (N=247)</td>
<td>1.60(±0.805)</td>
<td></td>
</tr>
<tr>
<td>Social activity</td>
<td>Breastfeeding directly (N=168)</td>
<td>1.52(±0.697)</td>
<td>-0.373</td>
</tr>
<tr>
<td></td>
<td>All other practices (N=247)</td>
<td>1.49(±0.683)</td>
<td></td>
</tr>
<tr>
<td>Art</td>
<td>Breastfeeding directly (N=168)</td>
<td>1.60(±0.764)</td>
<td>-1.167</td>
</tr>
<tr>
<td></td>
<td>All other practices (N=247)</td>
<td>1.89(±1.035)</td>
<td></td>
</tr>
<tr>
<td>Competition activity</td>
<td>Breastfeeding directly (N=168)</td>
<td>1.85(±0.949)</td>
<td>1.354</td>
</tr>
<tr>
<td></td>
<td>All other practices (N=247)</td>
<td>1.51(±0.855)</td>
<td></td>
</tr>
<tr>
<td>Skill-related activity</td>
<td>Breastfeeding directly (N=168)</td>
<td>1.41(±0.704)</td>
<td>-2.012*</td>
</tr>
<tr>
<td></td>
<td>All other practices (N=247)</td>
<td>1.26(±0.539)</td>
<td></td>
</tr>
<tr>
<td>All</td>
<td>Breastfeeding directly (N=168)</td>
<td>1.34(±0.629)</td>
<td>2.318*</td>
</tr>
<tr>
<td></td>
<td>All other practices (N=247)</td>
<td>1.43(±0.731)</td>
<td></td>
</tr>
</tbody>
</table>

**Note:**

1. *p<0.5; **p<0.1; ***p<0.001
2. Breastfeeding practice: Breastfeeding directly indicates breastfeeding babies directly from the wet nurse. All other practices, combined, are feeding methods such as bottle feeding with expressed milk, alternating between the direct breastfeeding and bottle feeding with expressed milk, and directly breastfeeding only before bedtime.