Author’s response to reviews

Title: Dog ownership, dog walking, and leisure-time walking among Taiwanese metropolitan and nonmetropolitan older adults

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Author’s response to reviews:

Editor-in-Chief, BMC Geriatrics

Re: Dog ownership, dog walking, and leisure-time walking among Taiwanese metropolitan and nonmetropolitan older adults (Manuscript ID: BGTC-D-17-00551)

The authors wish to thank the Editor and the Reviewers for their constructive feedback. The quality of our manuscript has certainly been improved as a result of these comments. We have followed the editorial changes and the technical requirements to revise the manuscript substantially. Our responses and the necessary changes are included here and within the revised manuscript. We list the comments from each reviewer followed by our responses. The revised and new sentences are highlighted in red in the revised manuscript.

Thank you for considering this revision.

Yours sincerely,

Yung Liao (on behalf of co-authors)

Department of Health Promotion and Health Education, National Taiwan Normal University.
Technical Comments:

Point-by-point response to the reviewer: We have received your manuscript, however, it has come to our attention that no cover letter/response to reviewers report included in your submission. Please could you re-submit your manuscript with cover letter by clicking the 'Cover letter' tab in the submission system. Press 'Continue' at the bottom of this page and then proceed to the 'Upload' page. Here you will need to upload your manuscript file again so that you can click the 'Submit new version' button.

Response: Thank you very much for your comments. We apologize for our mistakes. We have uploaded the cover letter in the system accordingly.

Please include List of Abbreviations after Conclusion.

Response: Thank you for your suggestions. We have added the list of abbreviations after Conclusion accordingly (page 12, line 270-272).

Editor Comments:

Thank you for submitting an interesting article. I would like you to show the evidence of whether older subjects can answer accurately the time to walk with dogs.

Response: Thank you very much for your comments. We have added the references accordingly. (page 6, line 111-112)

These validated items measuring dog-walking frequency and duration for older adults have been used in previous studies [13, 14].

<Reference>


Responses to the Reviewer #1 Masami Akai, M.D., Ph.D.
General comments

This article examined the prevalence of dog ownership and dog walking and its association with leisure-time walking among metropolitan and nonmetropolitan older adults. This is a cross-sectional survey targeting Taiwanese older adults, and, I think, a well-written, interesting, and joyful study. Their working hypotheses are that (1) people who own dogs increase their physical activity, centering on walk, because of dog walking, (2) the prevalence of dog ownership and dog-walking status might differ according to cities with different residential densities (i.e., metropolitan vs. nonmetropolitan areas). Comparison between older adults lived in metropolitan and nonmetropolitan areas were clearly showed.

Response: We thank the Reviewer for this positive comment.

However, my main concern is its sample size and interpretation of the results.

Query 1: Sample size

As for study aim, their sample size calculation was indicated to examine the prevalence of dog ownership and dog walking and its association with leisure-time walking among metropolitan and nonmetropolitan older adults. However, the actual number of focused group (dog walker) is remained as 40 (19 in metropolitan area and 21 in nonmetropolitan area). Is the participants number as 40 adequate? I am afraid that a subgroup analysis of 40 cases is not enough to draw a definite conclusion.

Response: We agree with you that the limited number of sample size in subgroup analysis is a major limitation of the present study. We have added this as a limitation. (page11, line247-250)

First, the limited sample size for subgroup analysis may decrease the statistical power of our findings. Future studies using prospective design with larger sample size should further investigate these associations in this context.

Query 2: Statistics

Is it able to overcome the above-mentioned issue by forced-entry adjusted logistic regression?

Response: As our responses of your Query 1, we have added this as a limitation of this study.

Query 3: Preference for dog breeds
As dog walking is just a tool to enhance physical activity of dog owners, I would like to know the dog type and dog size (general trend in Taiwan) if possible. I think these issues directly relate to the dog owners' view and dog walking. If they prefer small dogs, they can keep dogs indoors.

Response: Thank you very much for your comment. The information of dog type and dog size in Taiwan is nuclear and not be shown in government data. In general, the dog owner in metropolitan were more likely to own small dogs, whereas dog owners in non-metropolitan were more likely to own big dogs because of the space-differences. Thus, we have added this as a limitation of the present study. (page 11, line 253-255)

Information of dog owners’ preference for dog breeds and dog characteristics such as dog health, age, type, or size that may be related to dog owners’ walking behavior [28], were not obtained in this study.

<Reference>

Responses to the Reviewer #2 Therma Cheung

General comments

Thank you for the opportunity to review this article. It is a very interesting study. I have a few suggestions and comments as below:

Results: the authors would need to revise this part to improve its readability

Response: Thank you for your suggestions. We have improved the readability of this manuscript accordingly.

Query 1: 3.1 Characteristics of the participants (is it better to change it to 'sociodemographic characteristics of the participants'?)

Response: We have changed the subheading 3.1 “Characteristics of the participants” to “sociodemographic characteristics of the participants” accordingly. (page 7, line 163)
Query 2: The authors have repeated information given in Table 1. As a reader, I am not sure why the authors chose to repeat certain percentages in the text. What is the significance of these percentages? What is the message here? For example, if the authors want to highlight the population proportion of female to male are significantly different between metro and non-metro area, they have to put the message across in the text...... and discuss the significance of this data in the discussion section later.

Response: Thank you for your commons. We have revised the results of Table 1 accordingly (page 8, line 164-173).

Table 1 contains the sociodemographic characteristics in the total sample according to metropolitan and nonmetropolitan areas. Overall, the mean (standard deviation [SD]) age of the respondents was 72.51 (± 6.2) years. 50.3% of respondents were men, 65.2% were aged 65–74 years, 28.5% had a tertiary degree, 10.1% had a full-time job, 76.8% were married, 86.4% were living with others, 20.0% of respondents reported health status were poor, and 41.8% were either overweight/obese. A total of 49.0% respondents lived in metropolitan areas. Chi-square test analysis revealed that older adults living in nonmetropolitan area were more likely to be male (54.7% vs.45.6%), not having tertiary education (75.0% vs.67.9%), living alone (16.2% vs.10.8%) and reporting poor self-rated health status (23.9% vs.16.0%).

We have also added some discussion regarding the significance of the results from Chi-square test accordingly (page 10-11, line 238-240)

Critically, the aforementioned results indicate that promoting the initiation of dog walking among older adults who live in nonmetropolitan areas and own dogs, but who do not currently walk their dogs, could be a favorable population-based intervention strategy to achieve the recommended levels of leisure-time walking. It is also noticed that older adults living in nonmetropolitan areas were more likely to have the characteristics of living alone and reporting poor self-rated health status. Thus, effective dog-walking intervention strategies, such as changing the perceptions regarding exercise requirements of the dog or providing dog-supportive physical environments, have been suggested as modifiable points for intervention [ 25, 26 ]. These dog-walking intervention strategies targeting nonmetropolitan older adults should be considered for future physical activity intervention studies.

Query 3: Table 1 - it says data are expressed as number (percentage) or mean (SD). However, from what I read, only percentages were reported in the table. Please amend as appropriate.

Response: We have deleted the table1 footnote sentence “Data are expressed as number (percentage) or mean (SD)”. The mean (SD) was only expressed as mean age.
Query 4: It is also stated that the proportional differences across metropolitan area categories was tested using chi square. Please state explicitly what you are testing?

Response: We apologize for not explaining the results of chi square test clearly. We have added the descriptions of detailed results from chi-square tests. (page 8, line 170-173)

Chi-square test analysis revealed that older adults living in nonmetropolitan area were more likely to be male (54.7% vs.45.6%), not having tertiary education (75.0% vs.67.9%), living alone (16.2% vs.10.8%) and reporting poor self-rated health status (23.9% vs.16.0%).

We have further revised the sentence in the footnote of Table 1.

“The proportional difference in characteristics between the residents of metropolitan and nonmetropolitan areas was tested using χ2”.

Query 5: Is it the association between the participants' characteristics and the areas (metro/ non metro) that they stay in? Here I see that population proportions of gender and self-rated health status are significantly different. Please discuss these results in your discussion section.

Response: We have discussed these results of chi-square test in the Discussion Section accordingly (page10-11, line 238-240).

Critically, the aforementioned results indicate that promoting the initiation of dog walking among older adults who live in nonmetropolitan areas and own dogs, but who do not currently walk their dogs, could be a favorable population-based intervention strategy to achieve the recommended levels of leisure-time walking. It is also noticed that older adults living in nonmetropolitan areas were more likely to have the characteristics of living alone and reporting poor self-rated health status. Thus, effective dog-walking intervention strategies, such as changing the perceptions regarding exercise requirements of the dog or providing dog-supportive physical environments, have been suggested as modifiable points for intervention [ 25, 26 ]. These dog-walking intervention strategies targeting nonmetropolitan older adults should be considered for future physical activity intervention studies.

Query 6: Page 8 second paragraph - I think you should give this paragraph a different subheading (consider ' prevalence of dog ownership and dog walking status) under 3.2 as it is not really under the sociodemographic characteristics of the participants (provided you change the earlier
sections, and I think this deserves a separate heading as it is the start of describing your main results).

Response: Thank you for your suggestions. We have added a separate heading ‘3.2. Prevalence of dog ownership and dog walking status’ to improve the readability (page8, line175). Furthermore, the original subheading ‘3.2’ have changed to ‘3.3 Dog ownership and dog-walking status associated with 150 min of leisure-time walking in metropolitan and nonmetropolitan areas’ (page9, line 189-190).

Query 7: In this paragraph, again percentages were reported as subtractions from the results tabulated in table 2 (For example, table 2 reported non dog owner 88%, and in text '12% owned a dog). The text in this paragraph is not adding value to the article. What is it that the authors want to highlight here?

Response: We have revised the descriptions of the sentence to be clearer accordingly. (page8, line 176-177)

Table 2 indicates that of the respondents, 88.0% were non-dog owner, and 12.0% owned a dog (including 8.3% of non-dog walker and 3.7% of dog walkers).

Query 8: Table 2: the categories of Non dog owner, non dog walker and dog walker are a bit confusing (I know the terms are defined in the methodology section but I think the table can still be presented in a way that makes these data even more readable. For example: Dog ownership –

Dog owner 12%
Dog walker 8.3%
Non dog walker 3.7%
Non dog owner 88%

You may take a look at the table and see how you can improve the readability.

In terms of statistics, I have checked and realized that you have done a 3x2 table with non-dog owner, non-dog walker and dog-walker with metro and non-metro area. It is a bit confusing as the three categories of non-dog owner, non-dog walker and dog-walker are not under one variable. the authors may want to explicitly state that they are doing a chi square for dog owner, non dog owner with metro and non metro, then another chi square for dog walker and non dog walker etc.? Again what is the significance of your finding here as you didn't highlight it in the text. Also please check the summation of these three variables of non-dog owner, non-dog
walker and dog walker under non-metro area, they add up to 99.9% only. Please rectify the decimal place calculation.

Response: Thank you very much for your constructive suggestions. First of all, we have revised the Table 2 and improved the readability accordingly.

Second, we have added the finding in the Result section (page8, line182-184) and some discussions in the Discussion Section (page9, line209-211)

Chi-squared tests also revealed that older adults living in nonmetropolitan areas were more likely to be a non-dog walker (those who owned a dog but did not walk their dog) than those living in metropolitan areas (10.9% vs. 5.5%).

Stratification by area indicated that older adults living in nonmetropolitan areas were more likely to own a dog but less likely to walk their dog than were those living in metropolitan areas.

Finally, we have recalculated the percentage of dog walking category was 100% in dog walking category variables (non-dog owner 85.3%, non-dog walker 10.9% and dog walker 3.8%) under non-metropolitan area.

Query 11: 3.2 (could be changed to 3.3 if there is a 3.2 after revision) Dog ownership and dog-walking status associated with 150 min of leisure-time walking in metropolitan and non-metropolitan areas - Table 3 can be revised to make it easier to understand. Does Ref means a reference point defined as OD = 1? Also, it is not clear how many people who are not dog owners actually achieve the 150 mins leisure time walking. This information is not available from Table 2 or anywhere else.

Response: Yes, the ‘Ref’ in Table 3 refers to a reference group. We have revised the ‘Ref’ into ‘1.00 (ref.)’ in Table 3 accordingly.

Query 14. Discussion –

No major issues once all of the above are addressed. Personally I would be interested to know the sizes of the dogs as it could a very important confounding variable in terms of dog walking.
Response: We agree with you that the information of dog size or dog type is a potential confounder of this study. Thus, we have added this as a limitation of the present study. (page 11, line 253-255)

Information of dog owners’ preference for dog breeds and dog characteristics such as dog health, age, type, or size that may be related to dog owners’ walking behavior [28], were not obtained in this study.

Query 15. Conclusion –

I would be interested to read a qualitative study as an extension from this study to find out the reasons of dog owners not walking their dogs both in metro and non metro area. The authors may find some of the reasons may extend to a scope that is beyond what they have discussed in this article.

Response: Thank you for your suggestions. Based on the suggestions, we have added the descriptions of conclusion (page 12, line266-268).

Future studies using qualitative design are needed as an extension from this study to find out the reasons why dog owners not walking their dogs both in metropolitan and non-metropolitan area.

I wish the authors the best in the publication of this interesting research.

Response: We thank the Reviewer for this positive comment.