

## PEER REVIEW HISTORY

BMJ Open publishes all reviews undertaken for accepted manuscripts. Reviewers are asked to complete a checklist review form (<http://bmjopen.bmj.com/site/about/resources/checklist.pdf>) and are provided with free text boxes to elaborate on their assessment. These free text comments are reproduced below.

This paper was submitted to a another journal from BMJ but declined for publication following peer review. The authors addressed the reviewers' comments and submitted the revised paper to BMJ Open. The paper was subsequently accepted for publication at BMJ Open.

(This paper received three reviews from its previous journal but only two reviewers agreed to published their review.)

## ARTICLE DETAILS

<b>TITLE (PROVISIONAL)</b>	Relationship of different domains of physical activity practice with health-related quality of life among community-dwelling older people: a cross-sectional study.
<b>AUTHORS</b>	Scarabottolo, Catarina; Cyrino, Edilson; Nakamura, Priscila; Tebar, William; Canhin, Daniel; Gobbo, Luis; Christofaro, Diego

## VERSION 1 – REVIEW

<b>REVIEWER</b>	Francisco José Tarazona-Santabalbina Francisco José Tarazona Santabalbina Department of Geriatric Medicine Hospital Universitario de la Ribera (Alzira, València, Spain)
<b>REVIEW RETURNED</b>	18-Nov-2018

<b>GENERAL COMMENTS</b>	<p>The authors have sent for possible publication an interesting cross-sectional study on the relationship between the perception of quality of life and physical activity in elderly subjects. Nevertheless, the manuscript must be modified in some aspects because it can not be published in its current format.</p> <p>The reviewer has presented the comments following the order of the sections.</p> <p>Abstract section. The reviewer suggests the authors include in the subsection results the distribution by gender and the mean of the age of the sample studied. In addition, the reviewer suggests that the authors specify the differences found in the bivariate analysis. The value of p expresses significant difference but not the magnitude of the effect.</p> <p>Methods section The reviewer suggests the authors change "Materials and methods" by "methods".</p> <p>Sample calculation. The authors calculate the sample size based on a 50% prevalence, but do not specify the prevalence to which they refer. The reviewer advises the authors to clarify this point. Also, the reviewer advises the authors to include the value of the estimated power of the study.</p>
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In the abstract section the authors commented that the participants were randomly selected. However, in the methods section, no randomization method is specified. The reviewer suggests the authors describe in detail the method of randomization used in the study.

At the beginning of page 6 of the manuscript, the authors comment on "each household who met the inclusion criteria". However, on the previous page, the authors point out "Individuals aged 60 and over, of both sexes, living in the city of Presidente Prudente - SP, Brazil were interviewed." The reviewer advised the authors to clearly explain the eligibility criteria, and the reviewer suggested that the authors explain why comorbidity variables were not included (which affect physical capacity and quality of life). ) that can be considered as confounding variables, and if the only criterion for inclusion was age equal to or greater than 60 years, the reviewer suggests that the authors explain whether palliative patients or older adults with disabilities or dependence were included.

Subsection Statistical analysis: The reviewer advises the authors to describe more adequately the statistical process. There is no description of the bivariate analysis for quantitative variables (age, height, BMI and QL dimensions) or whether it was parametric or nonparametric. The reviewer suggests to the authors to include the p value that consider threshold of statistical significance.

#### Results section

The authors mention at the beginning of the section "In relation to the PA level, 64.2% of the women were classified as insufficiently active (n = 149), and 72.6% of the men were classified as insufficiently active (n = 122). "The reviewer advises the authors to indicate if this difference is statistically significant. Next, the authors write "No significant differences (p <0.05) were observed between groups for anthropometric measures.". The value of p that the authors consider significant must be specified in the methods section. The reviewer suggests to the authors, describe the threshold of statistical significance in methods and eliminate the parenthesis as redundant.

Finally, in this first paragraph, the authors summarize some table 1 results "Sufficiently active elderly reported better HRQoL as they presented higher scores in the following SF-36 domains: better functional capacity (p = 0.025), less body pain (p = 0.037), and better perception in relation to social aspects (p = 0.023) when compared to the insufficiently active elderly group. "The reviewer suggests to the authors, eliminate the p values to be redundant. This information appears in the table 1.

Table 1: The legend does not include the abbreviations and does not specify that the values correspond to the mean and standard deviation (SD). In addition, the value of SD is better expressed in parentheses next to the mean than with the +/- sign.

The comments on the p value also serve for the summary of table 2, table 3 and table 4. Specifying the p value is redundant and does not provide relevant information to the reader.

	<p>Discussion</p> <p>The reviewer suggests the authors to increase the limitations section. Physical activity is measured with a survey and the anthropometric variables are height and BMI. However, weekly energy consumption related to physical activity, sarcopenia or frailty, or previous functionality (for example Barthel index score) comorbidity is not measured. All of them are confusing variables in the relationship between physical activity and quality of life. These limitations should be briefly explained in the conclusions. The most recent bibliographical references are from the year 2016. From that date to the present, several works have been published that report how physical activity improves the perception of quality of life or social networks. The reviewer suggests the authors update the bibliography</p>
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<b>REVIEWER</b>	Martine Puts Lawrence S.Bloomberg Faculty of Nursing University of Toronto
<b>REVIEW RETURNED</b>	21-Nov-2018

<b>GENERAL COMMENTS</b>	<p>thank you for giving me the opportunity to review your paper. I have some clarification questions about the methods.</p> <p>First of all, the term the elderly is used throughout the paper and the American Geriatrics Society recommends against using this term, and suggests to use older adults, please change that throughout the manuscript When It Comes to Older Adults, Language Matters: Journal of the American Geriatrics Society Adopts Modified American Medical Association Style <a href="https://onlinelibrary.wiley.com/doi/pdf/10.1111/jgs.14941">https://onlinelibrary.wiley.com/doi/pdf/10.1111/jgs.14941</a></p> <ol style="list-style-type: none"> <li>1) why did you use the SF-36 which is more a functional status measure in contrast to the WHO quality of life tool for older adults?</li> <li>2) Why was comorbidity information/medical status not included in the data collection as important confounder? This is known to impact function/quality of life.</li> <li>3) why was marital status/ living situation not included? This is known to impact quality of life.</li> <li>4) In the abstract there is no data on age and sex, please add. Please also describe in the text and abstract the data on physical activity. I am not clear what sufficient or insufficient refers to, can you express that information in minutes per week or something? And please add the descriptive PA data to the paper, there is no data showing the different subscale data that you use in your analyses.</li> <li>5) in the strength section, do you mean random sample instead of randomization process?</li> <li>6) I am not sure I understand the last strength, the collection and storage of electronic data, please clarify.</li> <li>7) In the introduction there is no mention of any previous study with Brazilian older adults, can you please comment if there have been previous studies that you can compare too?</li> <li>8) In the introduction you mention the PA domains but you do not describe them, please add.</li> <li>9) Materials section. for the first sentence I think the second part about analytical and descriptive character can be omitted.</li> <li>10) in the materials section, what does HDI mean? Abbreviations need to be spelled out the first time used.</li> <li>11) I am not clear for the sample size calculation, what prevalence you used in the sample size calculation, please clarify.</li> </ol>
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	<p>12) And in the same section, I am not clear about the data collection, did you mean researchers went in pairs door-to door for recruitment? please clarify?</p> <p>13) Why were persons in wheelchairs not eligible?</p> <p>14) How many potential participants declined to participate when invited? Can you describe that?</p> <p>15) Did you exclude any participants?</p> <p>16) it is mentioned that you divided participants in groups based on BMI but the group coding is not included in the methods or results, please add.</p> <p>17) can you provide more details on the PA tool you used, how many items are included? Does displacement mean transportation? And as mentioned above please include the descriptive results in the paper. Currently mostly p-values are provided and that is not informative about the actual effect sizes. That is true for all results in the results section, please add the descriptive info to the p-values presented.</p> <p>18) And in the results section please add the mean age etc. , what was the max age?</p> <p>19) Table 1 is missing the sex data</p> <p>20) for the methods section, it seems that many tests were conducted, creating the potential issue of multiple testing and type 1 error, did you adjust your p-value to reduce that?</p> <p>21) in the discussion, some statements need refs and could you more clearly describe what your study adds to the existing body of literature on PA and QOL? It is not clear.</p>
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### VERSION 1 – AUTHOR RESPONSE

Reviewer: 1

Comments:

Abstract section.

Reviewer comments: The reviewer suggests the authors include in the subsection results the distribution by gender and the mean of the age of the sample studied. In addition, the reviewer suggests that the authors specify the differences found in the bivariate analysis. The value of p expresses significant difference but not the magnitude of the effect.

Answer: We thank the reviewer for the comment. The corrections were made, and the 95% Confidence interval values were included in all bivariate analysis.

Methods section

Reviewer comments: The reviewer suggests the authors change "Materials and methods" by "methods".

Answer: The change was made.

Reviewer comments: Sample calculation. The authors calculate the sample size based on a 50% prevalence, but do not specify the prevalence to which they refer. The reviewer advises the authors to clarify this point.

Also, the reviewer advises the authors to include the value of the estimated power of the study.

Answer: We thank you for the comment. The Sample calculation topic was rewritten with recommended corrections and this information was included.

Reviewer comments: In the abstract section, the authors commented that the participants were randomly selected. However, in the methods section, no randomization method is specified. The reviewer suggests the authors describe in detail the method of randomization used in the study.

Answer: Thank you for the comment. The city of Presidente Prudente does not have a clearly geographical or demographical division. In this sense, with the support of a city map, postal codes and the list of streets available on the city council website, the city of Presidente Prudente was divided into five geographical regions (north, south, east, west, and central). In each of these regions was performed a list of all districts and its streets, which were randomly selected for being visited. In this way, all streets in each region had the opportunity to be selected. The researchers were distributed in pairs and all the residences of the selected streets were approached once. After explaining the research, all individuals from each household who met the inclusion criteria were considered eligible and invited to participate in the study. Participants were instructed to make a chair available and the research was conducted in front of the home or inside the house. The randomization process was clarified in the Participant selection process topic in the Methods section.

Reviewer comments: At the beginning of page 6 of the manuscript, the authors comment on "each household who met the inclusion criteria". However, on the previous page, the authors point out "Individuals aged 60 and over, of both sexes, living in the city of Presidente Prudente - SP, Brazil were interviewed." The reviewer advised the authors to clearly explain the eligibility criteria, and the reviewer suggested that the authors explain why comorbidity variables were not included (which affect physical capacity and quality of life). ) that can be considered as confounding variables, and if the only criterion for inclusion was age equal to or greater than 60 years, the reviewer suggests that the authors explain whether palliative patients or older adults with disabilities or dependence were included.

Answer: Dear reviewer thank you for the comment. The inclusion and exclusion criteria were clarified in the Participant selection process in regard of these observations. The information about comorbidities was included in the text and analysis, with description in the Comorbidities topic in the Methods section.

Reviewer comments: Subsection Statistical analysis: The reviewer advises the authors to describe more adequately the statistical process. There is no description of the bivariate analysis for quantitative variables (age, height, BMI and QL dimensions) or whether it was parametric or nonparametric.

The reviewer suggests to the authors to include the p value that consider threshold of statistical significance.

Answer: We thank for the comment. The statistical analysis topic was rewritten and all the suggestions were inserted.

Results section.

Reviewer comments: The authors mention at the beginning of the section "In relation to the PA level, 64.2% of the women were classified as insufficiently active (n = 149), and 72.6% of the men were classified as insufficiently active (n = 122). "The reviewer advises the authors to indicate if this difference is statistically significant.

Answer: Thanks for the comment. As the prevalence of high active older adults has been defined by quartiles, we performed a comparison of proportion of high actives according to sex in different domains. These results were included in the text as follows: "In relation to the PA level, the proportion of high physically actives was higher among men than women in total score (39.3% [95% CI= 34.5-44.0] vs. 17.8% [95% CI= 14.0-21.5]), at leisure time (47.5% [95% CI= 42.6-52.4] vs. 17.8% [95% CI= 14.0-21.5]), and in sports domain (38.0% [95% CI= 33.2-42.8] vs. 22.5% [95% CI= 18.4-26.6]), being lower among men than women only in work/occupational domain (23.5% [95% CI= 19.3-27.7] vs. 36.8% [95% CI= 32.0-41.5])." This difference was statistically significant (p-value for chi-square test = 0.01), and complementary data for the physical activity were inserted according to scores in different domains in the Table 1, with comparison by sex and its respective statistical significance.

Reviewer comments: Next, the authors write "No significant differences ( $p < 0.05$ ) were observed between groups for anthropometric measures.". The value of  $p$  that the authors consider significant must be specified in the methods section. The reviewer suggests to the authors, describe the threshold of statistical significance in methods and eliminate the parenthesis as redundant.

Answer: The suggested corrections were made in the text.

Reviewer comments: Finally, in this first paragraph, the authors summarize some table 1 results "Sufficiently active elderly reported better HRQoL as they presented higher scores in the following SF-36 domains: better functional capacity ( $p = 0.025$ ), less body pain ( $p = 0.037$ ), and better perception in relation to social aspects ( $p = 0.023$ ) when compared to the insufficiently active elderly group." The reviewer suggests to the authors, eliminate the  $p$  values to be redundant. This information appears in the table 1.

Answer: We agree with the reviewer, thank you for the comment. The  $p$ -values were removed.

Reviewer comments: Table 1: The legend does not include the abbreviations and does not specify that the values correspond to the mean and standard deviation (SD). In addition, the value of SD is better expressed in parentheses next to the mean than with the  $\pm$  sign.

Answer: Dear reviewer, thank you for the comment. We made the changes required. In regard the nonparametric data, we presented the values as median and interquartile range.

Reviewer comments: The comments on the  $p$  value also serve for the summary of table 2, table 3 and table 4. Specifying the  $p$  value is redundant and does not provide relevant information to the reader.

Answer: Dear reviewer, thank you for the comment. The  $p$ -values were removed and the 95% Confidence Interval was included for all bivariate analysis. In the table 3 and table 4, the  $p$ -values included correspond to the goodness of model fit by Hosmer Lemeshow test.

Discussion.

Reviewer comments: The reviewer suggests the authors to increase the limitations section. Physical activity is measured with a survey and the anthropometric variables are height and BMI. However, weekly energy consumption related to physical activity, sarcopenia or frailty, or previous functionality (for example Barthel index score) comorbidity is not measured. All of them are confusing variables in the relationship between physical activity and quality of life

Answer: We agree with the reviewer. These limitations were included in the text.

Reviewer comments: The most recent bibliographical references are from the year 2016. From that date to the present, several works have been published that report how physical activity improves the perception of quality of life or social networks. The reviewer suggests the authors update the bibliography.

Answer: Dear reviewer, thank you for the comments and suggestion. We updated the bibliographical references.

Reviewer: 2

Reviewer comments: First of all, the term the elderly is used throughout the paper and the American Geriatrics Society recommends against using this term, and suggests to use older adults, please change that throughout the manuscript When It Comes to Older Adults, Language Matters: Journal of the American Geriatrics Society Adopts Modified American Medical Association Style <https://onlinelibrary.wiley.com/doi/pdf/10.1111/jgs.14941>

Answer: Dear reviewer, thank you for the comment. We have made the change throughout the manuscript.

Reviewer comments: 1) why did you use the SF-36 which is more a functional status measure in contrast to the WHO quality of life tool for older adults?

Answer: Dear reviewer, thank you for the comment. The SF-36 has been the most commonly used instrument in studies related to physical activity. The fact that the SF-36 has a wide variety of items and domains, it allows a broad observation of the physical activity practice effects in older adults, thus its use may allow a better comparison of the results (Hart PD, Kang NL, Weatherby YS et al. Systematic Review of Health-Related Quality of Life Assessments in Physical Activity Research. World Journal of Preventive Medicine 2015;3(2):28-39. doi: 10.12691/jpm-3-2-3).

Besides that, the authors consider that quality of life may encompass different constructs of which SF-36 has been more associated with health-related quality of life, which is addressed in the title and main focus of the article (Huang IC, Wu AW, Frangakis C. Do the SF-36 and WHOQOL-BREF measure the same constructs? Evidence from the Taiwan population. Quality of Life Research 2006;15(1):15-24.) of while WHOQoL has been related to global quality of life, which in turn can be related to aspects that are not directly related to the effects of the PA practice, such as social conditions, access to health services and processes of global aging.

Reviewer comments: 2) Why was comorbidity information/medical status not included in the data collection as important confounder? This is known to impact function/quality of life.

Answer: We agree with the reviewer. We included the comorbidities information in the text and analysis. These variables were described in Comorbidities topic in the Methods section.

Reviewer comments: 3) why was marital status/ living situation not included? This is known to impact quality of life.

Answer: Thanks for the comment. We included the marital status information in the text and analysis. This variable was described in Sociodemographic variables topic in the Methods section.

Reviewer comments: 4) In the abstract there is no data on age and sex, please add. Please also describe in the text and abstract the data on physical activity. I am not clear what sufficient or insufficient refers to, can you express that information in minutes per week or something? And please add the descriptive PA data to the paper, there is no data showing the different subscale data that you use in your analyses.

Answer: Thanks for the comment. The age, sex, and physical activity information were included in the abstract and in the text. Due the characteristic of the Baecke's questionnaire (that provide a dimensionless score for habitual physical activity), it is not possible to express physical activity data in minutes per week. Thus, due to the lack of threshold to determine sufficient or insufficient physically actives by Baecke' score, we decided to classify the sample as "high active" (4th quartile) and "less active" (quartiles 1 to 3). This stratification into quartiles for Baecke' score have been adopted previously in Brazilian population (Codogno JS, Turi BC, Kemper HC, Fernandes RA, Christofaro DG, Monteiro HL. Physical inactivity of adults and 1-year health care expenditures in Brazil. Int J Public Health 2015;60(3):309-16.), and this instrument showed a very good sensitivity (98%) to identify sufficiently active people from the International Physical Activity Questionnaire - IPAQ (Oyeyemi AL, Moss SJ, Monyeki MA, Kruger HS. Measurement of physical activity in urban and rural South African adults: a comparison of two self-report methods. BMC Public Health 2016;16(1):1004.)

The information about physical activity score in different domains and comparisons by sex were presented in Table 1.

Reviewer comments: 5) in the strength section, do you mean random sample instead of randomization process?

Answer: The reviewer is correct. The suggested correction was made.

Reviewer comments: 6) I am not sure I understand the last strength, the collection and storage of electronic data, please clarify.

Answer: The process of collecting data through electronic devices contributed to improve the quality of the information collected. It was used a program (Open Data Kit program - ODK) that exports data information directly to a spreadsheet, eliminating, in this way, possible typos especially in

epidemiological studies. This was used as a quality control in the methodological part of this study. This information was included in text.

Reviewer comments: 7) In the introduction there is no mention of any previous study with Brazilian older adults, can you please comment if there have been previous studies that you can compare too?  
Answer: Dear reviewer, thank you for the comment. We have included two studies that evaluated the physical activity and the quality of life of older adults in Brazil. As the findings of the present study, these studies concluded that promoting the practice of physical activity for older adults population may support better parameters related to quality of life (Guedes DP, Hatmann AC, Martini FAN, et al. Quality of life and physical activity in a sample of Brazilian older adults. *J Aging Health* 2012;24:212–26. doi:10.1177/0898264311410693; Vagetti GC, Barbosa Filho VC, Moreira NB, et al. The Association Between Physical Activity and Quality of Life Domains Among Older Women. *J Aging Phys Act* 2015;23:524–33. doi:10.1123/japa.2013-0070). However, the physical activity practice was only carried out in its entirety and not separately by domains. The evaluation of physical activity by domains can provide more information for specific and effective public policy subsidies when it comes to the practice of physical activity and older adults.

Reviewer comments: 8) In the introduction you mention the PA domains but you do not describe them, please add.

Answer: Thanks for the comment. The description of physical activity domains was included in the Introduction.

Reviewer comments: 9) Materials section. for the first sentence I think the second part about analytical and descriptive character can be omitted.

Answer: The suggested correction was made.

Reviewer comments: 10) in the materials section, what does HDI mean? Abbreviations need to be spelled out the first time used.

Answer: Dear reviewer, thank you for the comment. HDI means Human development Index and we made that correction in the paper, also including the description of index.

Reviewer comments: 11) I am not clear for the sample size calculation, what prevalence you used in the sample size calculation, please clarify.

Answer: Thanks for the comment. Is not consensual in literature the prevalence of HRQoL in different domains. As no study has carried out a previous pilot-study, a prevalence of 50% was used, that maximizes the sample size and has been adopted in epidemiological studies (Agranonik M, Hirakata VN. Sample size calculation: proportions. *Rev HCPA* 2011;31:382–8. <http://seer.ufrgs.br/hcpa>). It was considered a tolerable error of 5% and the power of study of 80% and therefore the minimum sample size required for the present study was 379. At the end of study, a total of 419 older adults were evaluated, with exclusion of 19 participants for incomplete data of physical activity or quality of life, resulting in 400 older adults for data analysis. The Sample calculation topic was rewritten and these information were included.

Reviewer comments: 12) And in the same section, I am not clear about the data collection, did you mean researchers went in pairs door-to door for recruitment? please clarify?

Answer: Dear reviewer, thanks for the comment. We were in 4 researchers (sometimes 6) to do the recruitment of the participants, door to door in the streets of the city. It was decided that both, the invitation and the research evaluations would be carried out in pairs by the researchers, mainly thinking about our security.

Reviewer comments: 13) Why were persons in wheelchairs not eligible?

Answer: Thanks for the comment. The exclusion criteria was clarified in the text. This procedure was adopted because disabilities that don't allow the subject to stand and/or walk may cause an underestimation of physical activity habitual practice by the Baecke's questionnaire.



Reviewer comments: 14) How many potential participants declined to participate when invited? Can you describe that?

Answer: We will not be able to describe, because when the participant declined to participate in the study the next household was visited until the required sample size was reached. This information was included in the methods section.

Reviewer comments: 15) Did you exclude any participants?

Answer: A total of 19 participants were excluded of the analysis for incomplete data of physical activity and/or quality of life. This information was included in the Methods section.

Reviewer comments: 16) it is mentioned that you divided participants in groups based on BMI but the group coding is not included in the methods or results, please add.

Answer: Thanks for the comment. We used the BMI data only for the characterization of sample and it was not used to divide the sample.

Reviewer comments: 17) can you provide more details on the PA tool you used, how many items are included? Does displacement mean transportation? And as mentioned above please include the descriptive results in the paper. Currently mostly p-values are provided and that is not informative about the actual effect sizes. That is true for all results in the results section, please add the descriptive info to the p-values presented.

Answer: Thank you for the comment. The PA tool used (Baecke questionnaire) evaluates the total PA in three domains: PA in the work environment or in domestic occupations (8 items); PA in sports practices or in activities performed at a gym (10 items); PA during leisure time or during transportation (4 items). The questionnaire contains a Likert scale with the response options: never, rarely, sometimes, often, and always. At the end, the instrument provides a dimensionless score in relation to the practice of PA in each of the three domains, as well as a total score from the sum of these three domains. The information about the number of items was inserted and the other suggested corrections were made. The descriptive results of physical activity were included in the Table 1.

Reviewer comments: 18) And in the results section please add the mean age etc. , what was the max age?

Answer: The information was included. In the Table 1 was included the minimum and maximum values of all variables of the sample characterization. In regard to the age, due to its non normal data distribution, we presented it in median. The median age of the sample was 70.0 years and the maximum age was 97.0 years, with no difference between sex.

Reviewer comments: 19) Table 1 is missing the sex data

Answer: Thank you for the comment. The sex data and its comparisons were included in the sample characterization (Table 1).

Reviewer comments: 20) for the methods section, it seems that many tests were conducted, creating the potential issue of multiple testing and type 1 error, did you adjust your p-value to reduce that?

Answer: Thank you for the comment. We performed the Hosmer & Lemeshow (HS) test to analyze the goodness of the model fit. P-values of HS less than 0.05 were considered as a poor model fit. This information was included in Statistical analysis topic in the Methods section.

Reviewer comments: 21) in the discussion, some statements need refs and could you more clearly describe what your study adds to the existing body of literature on PA and QOL? It is not clear.

Answer: Most of the studies that aimed to verify the relationship between the practice of physical activity and quality of life in the older adults population considered only an isolated domain or physical activity as a whole (considering all domains of physical activity in a single block). Each physical

activity domain has its specific characteristics and must be considered in this relationship. For example, physical activities developed in domestic work at home tend to have differences in intensity when compared to physical activities in leisure domain.

Another factor is that adjustment of the analysis for comorbidities, since they are important health risk factors that may interfere in the relation between PA and HRQoL. In addition, the PA assessment by domains can help to prevent the health costs generated by insufficient physical activity practice. This information were inserted in the discussion.

### VERSION 2 – REVIEW

<b>REVIEWER</b>	Francisco José Tarazona Santabalbina Hospital Universitario de la Ribera. Alzira, Valencia. Spain Orrhogeriatric Unit. Hamad Medical Corporation. Doha, Qatar
<b>REVIEW RETURNED</b>	21-Jan-2019

<b>GENERAL COMMENTS</b>	The authors have addressed properly the questions of the reviewers. The manuscript have improved from the former version.
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<b>REVIEWER</b>	Martine Puts Lawrence S.Bloomberg Faculty of Nursing University of Toronto
<b>REVIEW RETURNED</b>	23-Jan-2019

<b>GENERAL COMMENTS</b>	<p>Thank you for allowing me to review the revised manuscript. While the authors have addressed many of the reviewers' concerns there are still a few issues that were not addressed adequately.</p> <p>1) While the comorbidities were included in the paper and analyses, the type of comorbidities and possible comorbidities was very limited and I think this need to be included in the limitation section. Things like osteoarthritis could be expected to have an big impact on Physical activity and quality of life and was not included.</p> <p>2) thank you for including more information on the PA questionnaire, it clarified the type of activities included but there is a limitation of dichotomizing the results and the reader has no idea how "active" the active group is compared to the others. I am still not clear how the different items in each sub-scale were calculated and i think you need to clarify in the tables min/max scores for each sub-scale. And the limitation of dichotomization needs to be included in the discussion as well.</p> <p>3) the sample size calculation is still not clear to me, what prevalence (50% of what??) was used in the calculations. Please rewrite.</p> <p>4) Similarly, I am still not clear how the approach was done, but the fact that you do not have any data on how many declined is a big limitation and should be included in the limitation section of the paper.</p> <p>5) Lastly, the issue of multiple testing is not addressed, the HS test is not addressing this issue. Please correct that and address.</p> <p>6) Table 2 is reporting proportions and not associations I think? please check.</p> <p>and please have a native speaker review the manuscript, the English is awkward in multiple places. For example students of scientific orientation top of page 7 what does that mean? Bottom</p>
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	of page 6 not to have underestimation of habitual practice? what does that mean? Good luck with the revisions
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## VERSION 2 – AUTHOR RESPONSE

Reviewer: 1

Reviewer comments: The authors have addressed properly the questions of the reviewers. The manuscript have improved from the former version.

Answer: Thank you very much for the comment.

Reviewer: 2

Reviewer comments: Thank you for allowing me to review the revised manuscript. While the authors have addressed many of the reviewers' concerns there are still a few issues that were not addressed adequately.

1) While the comorbidities were included in the paper and analyses, the type of comorbidities and possible comorbities was very limited and I think this need to be included in the limitation section. Things like osteoarthritis could be expected to have an big impact on Physical activity and quality of life and was not included.

Answer: Thank you for the comment. We agree with the reviewer. We included the comorbidities information in the limitation section.

2) Thank you for including more information on the PA questionnaire, it clarified the type of activities included but there is a limitation of dichotomizing the results and the reader has no idea how "active" the active group is compared to the others. I am still not clear how the different items in each sub-scale were calculated and I think you need to clarify in the tables min/max scores for each sub-scale. And the limitation of dichotomization needs to be included in the discussion as well.

Answer: We thank for the comment. The Baecke's questionnaire provide a dimensionless score for the three different domains, which was calculated through its specific formula. The lack of information about minutes and intensities of the scores is an important limitation of this instrument, which does not allow classifying the individuals into physically actives according to global recommendations. Due to this lack of classification, we categorized the sample into quartiles and considered the 4th quartile as the most active, which necessarily divide the sample at 75% of its distribution, independently of how much active they were compared to other populations. The minimum and maximum values of each domain of physical activity were previously included in the Table 1 and the limitation of dichotomization were now included in the Discussion section.

3) The sample size calculation is still not clear to me, what prevalence (50% of what??) was used in the calculations. Please rewrite.

Answer: This section was rewritten. The prevalence of 50% is referent to the unknown prevalence of binary outcome. This is considered as a conservative solution for epidemiological descriptive studies with a common outcome (Hajian-Tilaki, 2011). This prevalence was adopted due to the not consensual prevalence of HRQoL among older adults in the literature.

REF.: Hajian-Tilaki K. Sample size estimation in epidemiologic studies. *Caspian J Intern Med.* 2011;2(4):289-98.

4) Similarly, I am still not clear how the approach was done, but the fact that you do not have any data on how many declined is a big limitation and should be included in the limitation section of the paper.

Answer: Thank you for the comment. We have included this information in the limitation section.

5) Lastly, the issue of multiple testing is not addressed; the HS test is not addressing this issue. Please correct that and address.

Answer: We agree with the reviewer, once the HS test just analyzes the goodness of model fit. In order to fix the issue of multiple testing, we removed the p-values for HS test and included an extra analysis with a 99% Confidence Interval. However, no observations remained significant at  $p < 0.01$ . We hypothesize that it could be due to the limitation of sample size, which was calculated through a confidence interval of 95% level, not having power of evidence to support a later level of 99% in the same sample, besides the later inclusion of other variables (marital status and comorbidities), which resulted in more multiple comparisons in the Regression Model. This limitation was also included in the Discussion section.

6) Table 2 is reporting proportions and not associations, I think? Please check.

Answer: We thank the reviewer for the comment, and apologize for the mistake. The Table 2 is reporting the proportions of high active older adults in different domains of physical activity, according to each domain of health-related quality of life. The correction was made in the title of Table 2.

And please have a native speaker review the manuscript, the English is awkward in multiple places. For example students of scientific orientation top of page 7 what does that mean? Bottom of page 6 not to have underestimation of habitual practice? what does that mean?

Answer: Thank you for the comment. We had the manuscript reviewed by a native speaker. We have included a document to certify that.

#### VERSION 3 – REVIEW

<b>REVIEWER</b>	Martine Puts Lawrence S. Bloomberg Faculty of Nursing University of Toronto Toronto, Ontario, Canada
<b>REVIEW RETURNED</b>	21-Mar-2019
<b>GENERAL COMMENTS</b>	Thank you for the revised version, all feedback has been incorporated.