PEER REVIEW HISTORY

ARTICLE DETAILS

TITLE (PROVISIONAL)	Association of sedentary behavior patterns with dietary and lifestyle habits among public school teachers: a cross-sectional study
AUTHORS	Delfino, Leandro; Tebar, William Rodrigues; Gil, Fernanda Caroline; De Souza, Jefferson Marinho; Romanzini, Marcelo; Fernandes, Romulo; Christofaro, Diego Destro

VERSION 1 – REVIEW

REVIEWER	NAthalie Michels Ghent University, Belgium
REVIEW RETURNED	02-Dec-2019

GENERAL COMMENTS	GENERAL REMARKS: • The hypothesis as tested in this paper (are sedentary people also unhealthier in other lifestyle factors) seems of low relevance. More relevant hypotheses could be tested with this design. It would be more interesting to know whether teachers are more/less sedentary than those in more sedentary jobs? Which type of sedentary activities this concerns? Especially the difference in sedentary time weekdays versus weekend days would be interesting to see (which is not tested). Also the relation of being sedentary with the use of sitting breaks would be interesting. • The methodology for testing nutrition intake is not scientifically sound. First, arbitrary cut-offs are used (irrelevant comparisons and sometimes too small sample in each category). Second, the food categories are not based on a strong theory (e.g. no distinction in wholegrain cereals). • English language can be improved. (e.g. cofounding->confounding) METHODS: • Were all variables normally distributed: requirement to show means, otherwise medians should be shown in table 1 and a Mann-Whitney U test should be applied. • The authors refer to the Sedentary Behavior Research Network list for the questionnaire, but do not specify which questionnaire they have used from that list. I was wondering whether sitting time was further specified and thus also includes passive transport time. Also, it would be interesting to see the distinction between weekdays and weekend days: do they compensate for their standing job in the weekend by more sedentary behaviour? • The dichotomisation of variables by arbitrary cut-off (not based on recommendations) might cause difficulties in testing hypothesis e.g. snacking is continuously significant while categorically non-significant probably because only n=3 are in the 'high' category.

	• The terminology used in the classification for physical activity is rather strange as 'sufficient' and 'insufficient' are not based on a well-accepted cut-off but by percentiles. • Socio-economic status: descriptive data is missing • Cereals: wholegrain? What is the difference with 'grains'? • Snacks: sometime you mention 'salty snacks: was only this type of snacks specified? • Waist measurement method is not specified • The sample/power analysis seems to be calculated for the prevalence of sedentary time, while the authors rather tested associations with other lifestyle instead of a prevalence. RESULTS: • The chi-square analyses in table 2 are redundant: the non-adjusted regression analyses in Table 3 would reflect the same. • Is there a relation between amount of breaks at home vs during work? What is the relation between sedentary time (and especially the different types) and amount of breaks (work or home)? • Table 1: BMI would be more relevant to show than weight and height. • Table 1: physical activity: it would be helpful to see the theoretical maximum and minimum for this score • Table 1: Alcohol: it should be specified that it concerns doses/day. • What happens if you take the information on sedentary time and breaks together: creating 3 or 4 groups: low sedentary, highly sedentary but with breaks, highly sedentary but without regular breaks? DISCUSSION: • There is a whole paragraph on television viewing as explanation for other lifestyle factors while this seems irrelevant as the current study examined overall sedentary time (no division in television viewing)

REVIEWER	Magdalena Czlapka-Matyasik Poznan University of Life Sciences, Poland
REVIEW RETURNED	06-Dec-2019

GENERAL COMMENTS	The manuscript presented by Leandro Dragueta Delfino et al. is a study that provides interesting information concerning relation between dietary lifestyle included physical activity, dietary habits, alcohol consumption in teachers. The introduction is sufficient and consistent with the objective of the study. After careful analysis of the manuscript, I have a few general comments: 1. Please consider to use dietary habits instead eating habits. Define them clearly, as frequency of consumption selected food groups. 2. Eating Habits, Consumption of Alcohol and Tobacco/chapter should be developed and methods used clarified. Please use the appropriate nomenclature (24h recall, FFQ, food record) and explain the dietary habits in studies group evaluation. Was it validated questionnaire? If there was used frequency of consumption, what food groups you asked? What scoring system for the frequency of food consumption you used? To standardise the way of analysis and interpreting the results, it is recommended to use scores and/or indicators of daily frequency expressed as times/day.

	3. What is the reason (citation, recommendation) to classify for the high and low consumption? Please convert all dietary data for daily intake 4. Alcohol consumption should be qualified according to WHO recommendations for example. 5. Please explain in methods Socioeconomic Status classes. It is not clear what means class A1, A2 etc. 6. In statistical part there is lack information concerning data distribution. 7. Instead of weight and height, BMI should be calculated. 8. Table 1. Characterization of the sample (title) should be revised according to data included in table. Additionally data presented in Table 1. Should be recalculated according to daily frequency of intake, what should be clarified in methodology. 9. What king of statistics was calculated in table 2? Was is chi2? If yes, the statistics Chi should be given and "relation between ….." should be mention in title. 10. Table 3. and 4. and others included Logistic regression should be entitled properly: Multivariable-adjusted odds ratios and 95% CIs for …… 11. After results recalculation discussion should be revised.

VERSION 1 – AUTHOR RESPONSE

Reviewer: 1
Reviewer Name: Nathalie Michels
Institution and Country: Ghent University, Belgium
Please state any competing interests or state 'None declared': none declared

Please leave your comments for the authors below
GENERAL REMARKS:
• The hypothesis as tested in this paper (are sedentary people also unhealthier in other lifestyle factors) seems of low relevance.
Response: We thank the reviewer for the comment. Although the sedentariness has been widely reported in literature, including in regard eating habits, this kind of analysis in teachers has not been previously reported, mainly about the sedentary breaks. The majority of studies in school setting are focused in students and few of them are conducted aiming to investigate the teacher's health related habits. The teachers are a specific group of workers which have a workload of high mental requirement, which may negative affect their daily habits. In this sense, we believe that investigating the habits of teachers is important to direct actions and policies to describe and improve their health habits and, consequently, promote better habits in people who depend on their professional activities, as the students.

• More relevant hypotheses could be tested with this design. It would be more interesting to know whether teachers are more/less sedentary than those in more sedentary jobs? Which type of sedentary activities this concerns?
Response: We agree with the reviewer about the hypothesis of comparison of teachers with other workers. However the present study was designed to only assess public school teachers of a specific Brazilian city. In this sense, our database does not have information about other workers of the same setting. Nevertheless, this information was included in the limitation aspects of the study, in the Discussion section.

• Especially the difference in sedentary time weekdays versus weekend days would be interesting to see (which is not tested). Also the relation of being sedentary with the use of sitting breaks would be

interesting.
Response: We thank for the comment. The analysis was performed as recommended. We used the mean value between the hours reported in each behavior in a typical weekday and at a weekend day for the sedentary behavior calculation. We observed that median values of sedentary behavior in a typical weekday and at weekend was the same in the sample (6.0 hours [Interquartile range= 6.0], p-value for Wilcoxon rank's test= 0.360), however higher values of television viewing and lower values of computer use at weekend than weekday were observed (p-value for Wilcoxon rank test= 0.001 for both). This information was included in the Results section. The frequency of sedentary breaks at work and at leisure time was compared according low and high SB, no difference was observed. This result was included in the Table 1.

• The methodology for testing nutrition intake is not scientifically sound. First, arbitrary cut-offs are used (irrelevant comparisons and sometimes too small sample in each category). Second, the food categories are not based on a strong theory (e.g. no distinction in wholegrain cereals).
Response: We thank for the comment. The assessment of eating habits was based on the instrument of Brazilian Surveillance System for Risk and Protective Factors for Chronic Diseases by Telephone Survey (VIGITEL), which considers the frequency of "five or more servings" per week as regular consumption. Besides that, the weekly frequency of consumption is a measure which is conducive to easy interpretation and reflect habitual eating, as used in previous study (Christofaro et al., 2019). This information was clarified in the Methods section.
Christofaro DGD, Tebar WR, Mota J, Fernandes RA, Scarabottolo CC, Saraiva BTC, Delfino LD, de Andrade SM. Gender Analyses of Brazilian Parental Eating and Activity With Their Adolescents' Eating Habits. Journal of Nutrition Education and Behavior. 2019, Epub ahead of print.

• English language can be improved. (e.g. cofounding->confounding)
Response: We thank for the comment. The manuscript was full revised to improve the written and has been also revised by a native English speaker.

METHODS:
• Were all variables normally distributed: requirement to show means, otherwise medians should be shown in table 1 and a Mann-Whitney U test should be applied.
Response: We thank for the comment. All the variables were not normally distributed and the Mann-Whitney U test was used to compare distributions between Low SB and High SB groups.

• The authors refer to the Sedentary Behavior Research Network list for the questionnaire, but do not specify which questionnaire they have used from that list. I was wondering whether sitting time was further specified and thus also includes passive transport time. Also, it would be interesting to see the distinction between weekdays and weekend days: do they compensate for their standing job in the weekend by more sedentary behaviour?
Response: We thank for the comment. In the present study we used questions based on Sedentary Behavior Questionnaire – SBQ (Rosemberg et al., 2010), but focused only on screen time use (television, computer, and cell phone/tablet) and overall sitting per day. Sitting time was not specified by domain. We included the information about SBQ in the Methods section and the lack of domains in sitting time was considered as a limitation of the study, included in the Discussion section.
REF.: Rosenberg, D. E., Norman, G. J., Wagner, N., Patrick, K., Calfas, K. J., & Sallis, J. F. (2010). Reliability and Validity of the Sedentary Behavior Questionnaire (SBQ) for Adults, Journal of Physical Activity and Health, 7(6), 697-705.

• The dichotomization of variables by arbitrary cut-off (not based on recommendations) might cause difficulties in testing hypothesis e.g. snacking is continuously significant while categorically non-significant probably because only n=3 are in the 'high' category.
Response: We thank for the comment. We agree with the reviewer about difficulties to test

association between high consumption of snacks and high sedentary behavior, due to low observations (n=3). However, this criteria was adopted for all assessed foods and we believe that this low prevalence is related to this specific food consumption in this population. Besides that, this categorization was in accordance of the Brazilian Surveillance System for Risk and Protective Factors for Chronic Diseases by Telephone Survey (VIGITEL). Otherwise, the statistical significance observed in continuous analysis may be related to the hypothesis that teachers with high sedentary behavior reported to consume more snacks than teachers with low sedentary behavior, but even this high consumption was not sufficient to reach the cutoff point of 5 days per week, and for this reason was not observed significance in categorical analysis. Nevertheless, it was observed a low prevalence of consumption of snacks in the sample overall (no consumption= 70.6%; 1 day/week= 17.2%; 2 days/week= 6.7%; 3 days/week= 3.4%; 4 days/week= 0.8%; 5 days/week= 0.4%; 6 days/week= 0.4%; 7 days/week= 0.4%).

• The terminology used in the classification for physical activity is rather strange as 'sufficient' and 'insufficient' are not based on a well-accepted cut-off but by percentiles.
Response: We agree with the reviewer about the widely diffused cutoff points for sufficient levels of physical activity. However, in this study, the Baecke's questionnaire was used to assess physical activity, which is based on self-reported information about weekly frequency, perceived intensity, number of hours per week, and quantity of months of practice. In this sense, this instrument provides a dimensionless score for habitual physical activity, which does not allow to apply the literature proposed cutoff points, and for this reason was adopted 75th percentile to define as sufficiently actives. However, as it was not possible to infer whether teachers above 75th percentile of Baecke's score reach the global recommendation to be considered as physically active, we define the categorization of this variable as "less active" (1st quartile), "moderately active" (2nd and 3rd quartiles), and "high active" (4th quartile).

• Socio-economic status: descriptive data is missing
Response: We thank for the comment. The information about socioeconomic status of the sample was included in the Results section.

• Cereals: wholegrain? What is the difference with 'grains'?
Response: We thank for the comment. The consumption of grains in the present study was related to bean, rice, pea, lentil, chickpea, soy, while the consumption of cereals was related to oat, granola, and cornflakes. Rice and bean are the most popular grains daily consumed by Brazilian population, and for this reason, we opted to assess separately these two types of food (cereals and grains). We included the description about these types of food in the Methods section.

• Snacks: sometime you mention 'salty snacks: was only this type of snacks specified?
Response: We acknowledge for the mistake, there was a typo error by translating from Portuguese. In the study was not specified what kind of snacks.

• Waist measurement method is not specified
Response: We thank for the comment. The waist circumference assessment was clarified in the Anthropometry subheading of the Methods section.

• The sample/power analysis seems to be calculated for the prevalence of sedentary time, while the authors rather tested associations with other lifestyle instead of a prevalence.
Response: We thank for the comment. The sample size calculation was inherent to a larger research about the health behaviors of public school teachers. In this sense, due to the unknown prevalence of outcome (once has been included a large amount of variables), a more conservative method for epidemiological studies was adopted. This conservative method comprises the definition of equal chance to have or not have the outcome (50%). Besides that, the sample was initially randomly

selected, but due to desert of participation of 10 schools, all the teachers among the remaining 13 schools were invited to participate. By this way, all schools of the city were visited and all the teachers who agreed to participate were assessed.

RESULTS:
• The chi-square analyses in table 2 are redundant: the non-adjusted regression analyses in Table 3 would reflect the same.
Response: We thank for the comment and agree with the reviewer. The non-adjusted regression values were removed from Table 3.

• Is there a relation between amount of breaks at home vs during work? What is the relation between sedentary time (and especially the different types) and amount of breaks (work or home)?
Response: We thank for the comment. The correlation coefficient between breaks at home and during work was 0,408 (p-value for Spearman = 0.001). According to sedentary time, the amount of breaks at work was correlated to computer use (r= 0.126, p=0.049), cell phone/tablet (r=0.171, p=0.007), and sitting time (r= -0.185, p=0.007). No correlation between breaks at home and sedentary behavior was observed. This information was included in the Results section.

• Table 1: BMI would be more relevant to show than weight and height.
Response: We agree with the reviewer. The body mass index was included in place of weight and height.

• Table 1: physical activity: it would be helpful to see the theoretical maximum and minimum for this score
Response: We thank for the comment. We inserted the information about minimum and maximum values of the instrument in the Methods section.

• Table 1: Alcohol: it should be specified that it concerns doses/day.
Response: We thank for the comment. The specification was included in Table 1.

• What happens if you take the information on sedentary time and breaks together: creating 3 or 4 groups: low sedentary, highly sedentary but with breaks, highly sedentary but without regular breaks?
Response: We thank the reviewer for the comment. We performed the suggested analysis, which was included in the manuscript as Table 5, once we decide to join the previous Tables 4 and 5 into a single Table (Table 4), with only the values of adjusted analysis for both work and leisure time breaks in sedentary time. The Results section and Statistical Analysis subheading of Methods were revised accordingly. Besides that, it was inserted a paragraph about these findings in the Discussion section.

DISCUSSION:
• There is a whole paragraph on television viewing as explanation for other lifestyle factors while this seems irrelevant as the current study examined overall sedentary time (no division in television viewing)
Response: We thank for the comment. The paragraph was revised to make sense about overall sedentary behavior in regard screen devices and sitting time instead of only television viewing.

Reviewer: 2
Reviewer Name: Magdalena Czlapka-Matyasik
Institution and Country: Poznan University of Life Sciences, Poland
Please state any competing interests or state ‘None declared’: none declared

Please leave your comments for the authors below
The manuscript presented by Leandro Dragueta Delfino et al. is a study that provides interesting information concerning relation between dietary lifestyle included physical activity, dietary habits, alcohol consumption in teachers. The introduction is sufficient and consistent with the objective of the study.
After careful analysis of the manuscript, I have a few general comments:
1. Please consider to use dietary habits instead eating habits. Define them clearly, as frequency of consumption selected food groups.
Response: We thank the reviewer for the comment. The terms were changed throughout the manuscript and its definition was cleared in the Methods section.

2. Eating Habits, Consumption of Alcohol and Tobacco/chapter should be developed and methods used clarified.
Response: The chapter was revised and better described.
2.1 Please use the appropriate nomenclature (24h recall, FFQ, food record) and explain the dietary habits in studies group evaluation. Was it validated questionnaire? If there was used frequency of consumption, what food groups you asked?
Response: We thank for the comment. The information about dietary habits was clarified in the Methods.
2.2 What scoring system for the frequency of food consumption you used? To standardize the way of analysis and interpreting the results, it is recommended to use scores and/or indicators of daily frequency expressed as times/day.
Response: Dear reviewer, the frequency of consumption in the present study was assessed through the number of days per week that teachers reported to consume the specified foods. This procedure was adopted aiming to investigate the habitual consumption instead of quantity of servings. It was not the aim of this study to assess caloric or nutrients intake, but the weekly habit of consumption. In this sense, when one day was reported means that at least one serving was consumed. This procedure was used in previous study involving adults and their adolescents children (Christofaro et al., 2019) and is widely used by the Brazilian Surveillance System for Risk and Protective Factors for Chronic Diseases by Telephone Survey (VIGITEL). By this way, it was not possible to score the food frequency in times/day, and this factor was included as a limitation of the study in the Discussion section.

3. What is the reason (citation, recommendation) to classify for the high and low consumption? Please convert all dietary data for daily intake
Response: We thank the reviewer for the comment. The classification of high consumption (>5 days/week) was based on the Surveillance System for Risk and Protective Factors for Chronic Diseases by Telephone Survey (VIGITEL), which allows to compare dietary habits from Brazilian adult population. This information was clarified in the Methods. In this sense, it was not possible to convert the dietary data for daily intake in the present study, once the amount of servings was not assessed. This information was included in the limitation of the study at Discussion section.
REF.: Surveillance System for Risk and Protective Factors for Chronic Diseases by Telephone Survey. Ministry of Health, Brazil. 2017. Retrieved from: https://bvsms.saude.gov.br/bvs/publicacoes/vigitel_brasil_2017_vigilancia_fatores_riscos.pdf

4. Alcohol consumption should be qualified according to WHO recommendations for example.
Response: We thank for the comment. The high consumption of alcohol was classified according to the Brazilian Center for Information on Psychotropic Drugs (Galduroz et al., 1999). This classification was adopted due to its consistency with questionnaire, which was developed by the same institution and focused on Brazilian population.
REF.: Galduróz JCF, Noto AR, Nappo AS, Carlini EA. I Levantamento domiciliar nacional sobre o uso de drogas psicotrópicas: estudo envolvendo as 24 maiores cidades do estado de São Paulo. São

Paulo: CEBRID/Unifesp; 1999.

5. Please explain in methods Socioeconomic Status classes. It is not clear what means class A1, A2 etc.
Response: The socioeconomic status was better described. For characterization of sample, the classes were categorized into low, medium, and high, according to power of consumption recommended by the instrument (Brazilian Criteria for Economic Classification).

6. In statistical part there is lack information concerning data distribution.
Response: We thank for the comment. The information about data distribution was inserted in Statistical analysis subheading. Due to the variables were not normally distributed, the statistical analysis for characterization of sample was revised accordingly.

7. Instead of weight and height, BMI should be calculated.
Response: We thank and agree with the reviewer. The body mass index was included in the Table 1, as well as the waist circumference values, which were missing in the previous version.

8. Table 1. Characterization of the sample (title) should be revised according to data included in table. Additionally data presented in Table 1. Should be recalculated according to daily frequency of intake, what should be clarified in methodology.
Response: The title of Table 1 was corrected accordingly. Unfortunately, it was not possible to calculate the data according to the frequency of intake because the daily frequency was not assessed, it was only assessed the weekly frequency by days/week, as presented.

9. What kind of statistics was calculated in table 2? Was is chi2? If yes, the statistics Chi should be given and “relation between …..” should be mention in title.
Response: We thank for the comment. The title of Table 2 was revised and Chi statistics were included.

10. Table 3. and 4. and others included Logistic regression should be entitled properly: Multivariable-adjusted odds ratios and 95% CIs for ……
Response: The title of Tables was corrected accordingly.

11. After results recalculation discussion should be revised.
Response: The Discussion section was fully revised according to the revised Results.

VERSION 2 – REVIEW

REVIEWER	Magdalena Czlapka-Matyasik Poznan University of Life Sciences
REVIEW RETURNED	07-Jan-2020

GENERAL COMMENTS	Dear Authors thank you for all corrections, All of them are accepted. Congratulations of the paper, Best regards, Magdalena Czlapka-Matyasik