Peer Review Report

Review Report on Specific type of physical exercises, dietary preferences, and obesity patterns with the incidence of hypertension: a 26-year cohort study

Original Article, Int J Public Health

Reviewer: Claudia Agnoli
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EVALUATION

Q 1 **Please summarize the main findings of the study.**

In this prospective study conducted on data obtained from the China Health and Nutrition Survey (CHNS), the authors found that doing some specific types of exercise (i.e. martial arts, gymnastics, and ping pong) was associated with lower incidence of hypertension, while dietary preferences for fast foods, soft/sugared drinks, and salty snack foods, as well as TV or computer usage increased the risk of hypertension. Finally, obesity, either general or abdominal, increase the risk of hypertension; however, participants who had both types obesity had a greater risk of hypertension than those who had only general or abdominal obesity.

Q 2 **Please highlight the limitations and strengths.**

Main strengths include: the prospective design; the collection of a large amount of information; the recruitment of a large representative sample of the Chinese population.
Main limitations include: the unavailability of some important information for the study of the association between lifestyle and incidence of hypertension, such as salt intake; the lack of information on frequency and intensity of physical activity; the lack of information on habitual diet.

Q 3 **Please provide your detailed review report to the authors. The editors prefer to receive your review structured in major and minor comments. Please consider in your review the methods (statistical methods valid and correctly applied (e.g. sample size, choice of test), is the study replicable based on the method description?), results, data interpretation and references. If there are any objective errors, or if the conclusions are not supported, you should detail your concerns.**

In this observational study, the authors prospectively evaluated the association between specific types of physical exercise, dietary preferences, obesity patterns and hypertension risk in a representative sample of the Chinese population. They found that specific types of exercise were associated with lower incidence of hypertension, while sedentarity, general and abdominal obesity, and preferences for fast foods, soft/sugared drinks, and salty snack foods increased hypertension risk. Evidence on the association between lifestyle and hypertension occurrence among Chinese population is scant, thus the manuscript is potentially of interest from a public health point of view. However, some issues should be addressed in the paper to be suitable for publication.

MAJOR COMMENTS
My major comment concerns the description of the information collected in the surveys. What kind of questionnaires have been used to collect information on physical activity? Are there any data on occupational physical activity available? How did you collect dietary information? Did you ask only on dietary preferences for five food groups investigated as independent variables? Did you administer any kind of FFQs? I am aware that questionnaires changed between 1989 and 2015, and that information on data collection have already been published, but description included both in this manuscript and in reference 15 is too scant for a reader. Please add some details in the methods section.
Another of my concern is linked to the previous one: why did you evaluate the association between dietary preferences and not between dietary intake? Was the information on dietary intake available? How was the

information collected (frequency of food items/groups only? Semi-quantitative or quantitative information?)? If yes, this should be investigated. If no, this is a weakness of the study.

MINOR COMMENTS
- Introduction, page 3 lines 64-65: what is the additional information of dietary preferences as compared to nutrients/foods/food patterns in the study of the association between diet and hypertension risk? Please explain in the text or change this sentence.
- Methods, page 4, lines 81-83: how did you define implausible outline data? Please specify in the text.
- Methods, page 5, lines 89-90: participants with BMI<28 are normal weight or overweight, not only normal weight. Please change in the text.
- Methods, page 5, lines 95-96: why did you take into account only some kind of exercise? Did you collect any information on other physical exercise (e.g. cycling, swimming, ...)? Please specify in the text.
- Methods, page 6, lines 126-130: what is the underlying time variable of the Cox models? Please add in the text.
- Results, pages 8-9, lines 171-178: did you perform a further analysis separating the two classes "G+/A-" and "G-/A+"? If yes, please add the description of results in the text; if no, I recommend to perform it.
- Discussion, page 12, lines 247-249: since this is an observational study, you cannot conclude that it "could provide an accurate causal relationships between obesity patterns, specific types of physical exercise, and dietary preferences and the incidence of hypertension", but only that there is an association. Please change the text.
- The manuscript should be revised by a native English speaker for language editing.
- Please replace "valid" with "validated" when referred to questionnaires.

PLEASE COMMENT

Q 4 **Is the title appropriate, concise, attractive?**

Yes

Q 5 **Are the keywords appropriate?**

Yes

Q 6 **Is the English language of sufficient quality?**

It would benefit from a native English speaker editing.

Q 7 **Is the quality of the figures and tables satisfactory?**

Yes.

Q 8 **Does the reference list cover the relevant literature adequately and in an unbiased manner?)**

Yes

QUALITY ASSESSMENT

Q 9 **Originality**

Q 10 **Rigor**

Q 11 **Significance to the field**

Q 12 Interest to a general audience

Q 13 Quality of the writing

Q 14 Overall scientific quality of the study

REVISION LEVEL

Q 15 Please make a recommendation based on your comments:

Major revisions.