Reviewer's report

Title: In-home Solid Fuel Use and Cardiovascular Disease: The Shanghai Putuo Cohort Study

Version: 1 Date: 7 November 2011

Reviewer: Xiaorong Wang

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Major comment

This is a cross-sectional study aiming at determining an association between solid fuel use and several cardiovascular outcomes, including hypertension, CHD, stroke, and diabetes. The topic is of interest and importance from perspectives of both environmental health and public health in general. It appeared that there were positive associations of these health outcomes with the solid fuel use, though the associations were not necessarily a causal-link because of the nature of the study design. One major concern is a considerable difference in age between the “ever users” and “nonusers”. As indicated in Table 1, about 63% in the ever users were 40 years old or older, whereas nearly 80% in the nonusers aged below 40 years. Age is an important determinant (either as a confounder or an effect modifier) for all of the outcome variables under study. It is possible that the observed higher rates of health outcomes and the associations alike simply or at least partially reflect the difference in age b/t the two groups. The effects of age on the results could be substantial even though the age was put into the models. To get the concern over the possibly big effect of age on the results clarified, the authors may need to carry out a stratified analysis by age to see whether the associations persist in similar age groups. The current data may not be adequate enough for this analysis though.

Information on the exposure variable, i.e. “solid fuel use”, is quite ambiguous. Does the solid fuel mean coal, or biomass fuels, such as wood, crops, or both? Which one is predominant? The indicated “lifetime average amount” used in the subjects was about 18kg/yr, which seemed to be a small amount used for a household. Did it reflect a true situation?

The methodology used in the study could be described more clearly. For example, when were the data collected and measures conducted? Any quality control procedures were implemented to reduce possible information bias? Is there any period of time restricted to “self-reported doctor-diagnosed disease”, e.g., during past one year or 10 years, or during life time?

Although the subjects represented a relatively large sample size, about 24% (3,322/14,068) in the “Putuo cohort” were not included in the data analysis, which may raise a concern about possible selection bias. This should be discussed as a limitation, at least.
Minor comments

This is a typical cross-sectional study. The title of “the Shanghai Putuo Cohort study” is sort of misleading.

Abstract: (the Methods) The sentence of “Odds ratios and … were estimated using logistic regression models for the prevalence of each outcome after adjusting for potential confounders” is problematic. Logistic regression cannot estimate the prevalence of an outcome.

Page 6: (the 6th row), there is an overlap of 18.5-25 and >25 (BMI).

How were the current smokers and former smokers defined?

A clearer explanation for the result showing higher ORs for hypertension and CHD among never smokers should be given.

**Level of interest:** An article whose findings are important to those with closely related research interests

**Quality of written English:** Acceptable

**Statistical review:** No, the manuscript does not need to be seen by a statistician.