

## PEER REVIEW HISTORY

BMJ Open publishes all reviews undertaken for accepted manuscripts. Reviewers are asked to complete a checklist review form ([see an example](#)) and are provided with free text boxes to elaborate on their assessment. These free text comments are reproduced below. Some articles will have been accepted based in part or entirely on reviews undertaken for other BMJ Group journals. These will be reproduced where possible.

### ARTICLE DETAILS

<b>TITLE (PROVISIONAL)</b>	SALT INTAKE ASSESSED BY 24-HOUR URINARY SODIUM EXCRETION IN A RANDOM AND OPPORTUNISTIC SAMPLE IN AUSTRALIA
<b>AUTHORS</b>	Land, Mary-Anne; Webster, Jacqui; Christoforou, Anthea; Praveen, D; Jeffery, Paul; Chalmers, John; Smith, Wayne; Woodward, Mark; Barzi, Federica; Nowson, Caryl; Flood, Victoria; Neal, Bruce

### VERSION 1 - REVIEW

<b>REVIEWER</b>	Miljana Vegnuti Statistician-Methodologist University Hospital of Respiratory Diseases Golnik, Slovenia  I have no conflicts of interests.
<b>REVIEW RETURNED</b>	02-Sep-2013

<b>RESULTS &amp; CONCLUSIONS</b>	There is no significant (positive) association among salt intake and blood pressure proved by this two samples (Results, page 13). The mean value of blood pressure is quite normal for both samples, but the mean value of salt intake is more than two fold higher than Gold Standards. This "fatal" association has been addressed as leading risk factor for global disease burden and referenced by some other sources. But there are no such evidences within study samples. Some explanation?
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<b>REVIEWER</b>	Paolo Cravedi, MD, PhD Icahn School of Medicine at Mount Sinai, New York, NY, US.
<b>REVIEW RETURNED</b>	21-Sep-2013

<b>THE STUDY</b>	The initial summary is too vague. The authors should provide more details on the number of patients and methods.
<b>RESULTS &amp; CONCLUSIONS</b>	The authors are right in stating that, due to the very low acceptance rate in the random sampling, the random sample becomes a volunteer sample and any biases consequent upon using a volunteer sample might also be apparent in the 'random' sample. Since characteristics of the subjects between the two cohorts were significantly different, both populations may actually be not representative of the general population. However, if both approaches are biased, the study fails to provide an effective answer to the question on how collecting meaningful information about the salt consumption in the general population with limited costs. This is the main issue of the paper that should be adequately addressed.

	ii. As a follow-up of the previous issue, lack of significant differences in salt consumption between the two cohorts does not mean that both equally provide information on the general population. On the contrary, it may mean that salt consumption is high across different population subsets.
<b>GENERAL COMMENTS</b>	In the present study, Land and colleagues compared the sodium intake between a cohort of randomly selected adults and volunteers in Australia. Out of the 2152 randomly selected adults from Lithgow, New South Wales, 306 provided usable 24-hour urine samples from 306 (response rate 16%). Estimated salt consumption and the recruitment costs were compared with those of 113 volunteers. Characteristics of patients in the two cohorts were different, but sodium excretion was comparable and remarkably high in both groups. Costs for obtaining urinary collection from the random cohort were twice higher than from the volunteer cohort. From these results, the authors concluded that “estimates of [salt] consumption obtained from volunteer samples may be valid and less costly” than the ones taken from random samples. The approach provided here is intriguing, but the study is flawed by the limited sample size and conclusions are not fully supported by the data.

### VERSION 1 – AUTHOR RESPONSE

Response to reviewer one:

It was not the intention of the current research to explore the association between salt consumption and blood pressure. A different study design and a different set of analyses would have been required to achieve that purpose. Specifically, with a sample size of this magnitude it would be necessary to have multiple measures of BP and multiple measures of urinary sodium excretion from each individual. Further, there is already a robust body of evidence that clearly defines the aetiological role of excess salt consumption in the causation of elevated blood pressure. We have added note to the Discussion.

Response to reviewer two - comments (i) and (ii)

The points made by the reviewer are fair. The study is imperfect. In our defence we note that the average salt consumption levels estimated for both the groups we studied are close to the average consumption levels reported for the Australian population by a number of other studies done using a number of different methodologies. We also note that substantial heterogeneity in estimated salt consumption levels is not usually observed between groups unless measures of age, sex or body mass are substantively different between populations. In recognition of these comments we reworded key sections of the text to make a more cautious interpretation of our data.

Response to reviewer two - comment (iii)

We agree that the sample size was relatively small and we have noted this within the limitations. In line with the previous comments we have attenuated the strength of our conclusions to frame them as more “hypothesis generating” than evidence in their own right. We hope this serves to address the very reasonable comments of this reviewer.

## VERSION 2 – REVIEW

<b>REVIEWER</b>	Paolo Cravedi, MD, PhD Icahn School of Medicine at Mount Sinai, New York, US
<b>REVIEW RETURNED</b>	31-Oct-2013

<b>GENERAL COMMENTS</b>	The authors tried to address the issues raised in my previous review. However, since the major Reviewer's concerns are related to the study design, the study still presents the same limitations.
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## VERSION 2 – AUTHOR RESPONSE

Reviewer Name Paolo Cravedi, MD, PhD

Institution and Country Icahn School of Medicine at Mount Sinai, New York, US

Please state any competing interests or state 'None declared':None declared.

The authors tried to address the issues raised in my previous review. However, since the major Reviewer's concerns are related to the study design, the study is still presents the same limitations.

Response

We agree the study design is imperfect, however salt consumption in populations is routinely estimated on the basis of population surveys that get very poor response rates - comparable to that achieved in our random sample population. The survey findings are nonetheless believed and acted upon. We have now further supplemented the text with the limitations of the study design and highlighted that although our recommendation is that this finding is worthy of further exploration, we do not advocate for an immediate shift to volunteer-based research.