Reviewer’s report

Title: Estimating mean population salt intake in Fiji and Samoa using spot urine samples

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Reviewer: Dinesh Neupane

Reviewer's report:

This study compares 24 hour salt level using spot urine and 24-hour urine collection in Fiji and Samoa. The strength of this study is the large sample size, testing five equations to convert spot urine to 24-hour urine sodium estimation. As expected, there was a wide variation according to the methods used for conversion. All pairwise comparisons of salt intake estimates based on spot urine equations against 24-hour urine values were significantly different which is creating even more uncertainty for using spot urine method. The authors suggested to have additional analyses but did not explain what that would be. Do the authors mean we need more studies like this or more analyses? If more analyses, what could be they? The International Consortium for Quality Research on Dietary Sodium/Salt (TRUE) recommends simultaneous calibration study with complete 24-hour urine samples should ideally be conducted in an adequately large subset to ensure the accuracy of the spot urine estimate. What are the thoughts of authors on this? Further, the INTERSALT equation gave the best estimation for both Fiji and Samoa. It may be useful for the readers if authors can add why INTERSALT showed the closest estimation compared to other equations. What could be the reasons (body mass index, male/female ratio, age, ethnicity etc.) for such a close estimation? One of the limitations of the study which is missing in the manuscript is that the spot urine was part of 24-hour urine and this could inflate the correlation between the two collections. Regardless of the limitations of the spot urine samples, the authors recommend that spot urine can be used to classify whether population intake at the population level is higher than WHO recommended level or not (>5 g/day). I think this is a very important finding. The high difference between the amount of salt consumption in Fiji and Samoa is very interesting and that might have an effect on spot urine estimation. The authors mentioned that they applied the level creatinine excretion for the first time as exclusion criteria in the analyses. What is the rationale of selecting these cut-off points? Are you assuming that the concentration of creatinine throughout the day would be constant?

Minor comments

1. Line 97- For these reasons, its application is often limited in population surveys.
I do not get this. The purpose of spot urine is also to estimated salt intake at the population level, is not it?

2. There is a growing interest in the use of spot urine samples as an alternative to the gold standard 24-hour urine collection in measuring population-level salt intake.

My impression is that over the last few years, there is a decreasing interest in the use of spot urine samples as an alternative to 24-hour urine collection. What made the authors think that there is an increasing interest to use spot urine? Definitely, there is an increasing interest to find a more convenient and easy way to measuring sodium intake than 24-hour urine collection.

3. Line 126 …..evaluate the change in salt intake after 18-20 months of salt reduction interventions.

Does this mean this is the salt estimation in the area where intervention was implemented?

4. Line 131: What about menstruating women?

5. Line 152 : total creatinine excretion was <4mmol/day or >25mmol/day for women, and <6mmol/day or >30mmol/day for men

   Something is wrong with the unit.

6. Line 196: starting with number

   I think the journal does no support sentence starting with the number.

7. 319 This may be related to the smaller sample size in Fiji, which led to higher variability in the sample.

   The sample size should not be the cause of the difference as long as it is adequately powered.

8. 345 This shows that while spot urines may be flawed for individual assessment of intake, this method can still produce reasonable population-level estimates
The results of the study do not strongly support this statement.

9. References: I think the journal follows abbreviated name of journals

10. I would keep either Table 2 or Forest Plot. Both are giving the same information.

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