Reviewer's report

Title: Advances in oral health knowledge of Greek navy recruits and their socioeconomic determinants

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Reviewer: Dr Mary Tavares

Level of interest: A paper whose findings are important to those with closely related research interests

Advice on publication: Unable to decide on acceptance or rejection until the authors have responded to the compulsory revisions

This is a very interesting paper that serves to document the changes in popular knowledge about oral health in the past 11 years. Information on shifts in health care knowledge are very important to public health professionals as well as to private clinicians.

There are some flaws that need to be addressed. In Materials and Methods, the first half of the paragraph is somewhat unclear. The authors refer to the 2 cohorts as one ("2,764 subjects") and then separately. I think that is is better to keep them separate, and not to lead the reviewer to think that they are one group divided into 2 sections.

The reader is not told how the subjects were selected. It is not clear if all recruits were targeted, or if they were selected to participate. There is also no information on refusal rates. In the discussion section, page 11, the authors state that they believe that their findings are representative for young male Greek adults. This is not the case - their sample is not representative of that group and was presumably not selected to be representative. It is very important that the authors state that their findings can only be related to the group that responded. The interesting findings are the differences and similarities in 2 similar cohorts over time. However, these cohorts are not representative of the population of young Greek males.

No formal validation of the instrument is a flaw, but authors acknowledge this. I would have liked to have seen a report on how well understood the questions were - but authors seem confident that the questionnaire items were clear. However, they cannot discount that some SES differences might be due to interpretation of the questions and that this factor might be a confounder.

There are some editorial comments in the Results section, which are not appropriate in this section. Also, there are word usages that imply that the authors are offering their opinion: ie: at bottom of page 5, the word "misinformation" should be replaced by "response". On top of page six, I removed "we acknowledge" and "hypothetical". There are other examples that should be found and removed.

There are some places in the Results section that findings are noted and not described, requiring
the reader to study the tables. This occurs in the 2nd paragraph on page 6 - a difference between HES and LES is noted. It should also be succinctly described - what is the difference? The same holds true for the 2nd paragraph on page 7. The authors note that "the trend changed" and should describe how it changed and clearly define the "trend".

The long descriptions of the household expenditure survey on pages 9 and 10 should be in the discussion, not results section. These findings are not the results of the study described in this paper, and should not be in the results section. The description of the findings from this national survey should be made more succinct, and the relationship between those findings and the oral health knowledge trend needs to be made clearer. The authors need to be more definitive about what they see as the connections between the two surveys.

There is a mixture of use of the 2nd and 3rd person in the results and discussion sections. It would be advisable to review this with an editing service.

In conclusion, this is an interesting paper on a worthwhile topic. However, there are some serious flaws in the writing and the drawing of conclusions that must be addressed. I recommend that the authors address these and submit the paper for another review. In particular, they should be careful to not present their findings as representative of any population unless they can describe a sampling plan that was used for subject selection.

**Competing interests:**

None declared.