Author's response to reviews

Title: The impact of the Cyprus comprehensive smoking ban on air quality and economic business of hospitality venues

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Author's response to reviews: see over
November 23, 2012

Natalie Pafitis, MSc
Executive Editor
BMC Public Health

Re: Manuscript 1703811239773674

Dear Ms. Pafitis,

We are pleased to submit a revision of our manuscript “The Impact of the Cyprus Comprehensive Smoking Ban on Air Quality and Economic Business of Hospitality Venues” for your consideration. We would like to thank Dr. Samet and the reviewers for their recommendations and excellent suggestions. We tried to take all comments into consideration and modify the manuscript accordingly; we believe that this revised manuscript is much stronger and hopefully at the high standards of your journal.

Please find below a detailed response, which addresses point by point the referees’ comments.

We would like to thank you very much in advance for your consideration and we are looking forward to hearing from you soon.

Sincerely,

Costas A. Christophi, PhD
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Associate Editor's Comment:

The manuscript provides potentially interesting findings from Cyprus, largely replicating findings from other locations. The authors need to better describe the contribution of this study to an already large literature. There are concerns about the methods that need to be addressed as well, particularly to provide more information, to the extent possible, on the approach to convenience sampling. Was the approach truly haphazard? Any way to address representativeness?

Response: We have responded to all of the reviewers’ comments point by point as detailed below – we have provided additional information as requested and revised the text to address sampling and other issues as well as better describe our manuscript’s contribution. We hope that these adequately answer all of the Associate Editor’s comments as well.

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Also, please make the following formatting changes during revision of your manuscript. Ensuring that the manuscript meets the journal’s manuscript structure will help to speed the production process if your manuscript is accepted for publication.

1. Please remove the visible vertical lines of the tables.

Tables: Please ensure that the order in which your tables are cited is the same as the order in which they are provided. Every table must be cited in the text, using Arabic numerals. Please do not use ranges when listing tables. Tables must not be subdivided, or contain tables within tables. Please note that we are unable to display vertical lines or text within tables, no display merged cells: please re-layout your table without these elements. Tables should be formatted using the Table tool in your word processor. Please ensure the table title is above the table and the legend is below the table. For more information, see the instructions for authors on the journal website.

2. Please provide a Figure Legend title.

3. Figure cropping: It is important for the final layout of the manuscript that the figures are cropped as closely as possible to minimise white space around the image. For more information, see the instructions for authors:
   http://www.biomedcentral.com/info/ifora/figures.

Response: We formatted our tables and figures as requested above.
Reviewer: Ana Navas-Acien

This study evaluates changes in PM2.5 concentrations in 35 venues before, and 21 venues both before and after the implementation of a smoke-free legislation in Cyprus. In addition, information on legislation enforcement and on the economical impact of the legislation is provided.

Comment: Limitations of the study include the small sample size for the PM2.5 measurements. Also, many studies have already been reported with similar findings and it is unclear what are the research innovations this study contributes to advance the field.
Response: Our novelty is mainly on the relationship to the economic effects; while the PM$_{2.5}$ measurements are not novel, they are supportive of the legislation’s success. In addition, our manuscript reports positive results in a country with high prevalence at a region of the world where tobacco use and second-hand smoking are major issues in terms of public health and we believe it is important that these get published.

Additional comments:

Comment: The background is long and generic, it needs to be more specific, describe better the characteristics of the Cyprus legislation, and summarize better previous studies conducted in this topic (making sure that they are correctly classified by comprehensive vs. no-comprehensive legislation, for instance Israel does not have a comprehensive legislation, so the small reduction is not a surprise).
Response: We have revised the background section extensively including the paragraph summarizing previous studies as suggested by the reviewer.

Comment: The economical debate that the authors mention in the introduction is not well documented. Actually, nowadays it is generally accepted that good research has shown that there is no economical damage.
Response: We have revised the corresponding text in both the Background and Discussion sections to make the above point clearer.

Comment: The description of the PM2.5 monitoring can be substantially shortened as it is well established and there are good descriptions of it.
Response: We have shortened significantly the description of PM2.5 monitoring.

Comment: PM2.5 is generally very skewed and it is better to use medians or geometric means as measures of central tendency instead of the mean.
Response: We have added medians in the text and used non-parametric tests to check for differences.

Comment: I disagree with the comment in the discussion that prior to the Cypriot law the vast majority of clean indoor air laws were passed in nations with low smoking rates and where
enforcement was perceived as relatively easy. Indeed before Cyprus, countries such as England, Uruguay and Italy had passed smoking laws. In Uruguay, for instance the smoking prevalence is among the highest in the Americas and perception about the possibility of success was not high. However, monitoring data from Uruguay has shown that implementation of the legislation was largely successful.

Response: We have deleted the particular comment and revised the Discussion section adding also a reference to the more recent Lancet paper on Uruguay.
Reviewer: Bernice Elger

1. *Is the question posed by the authors well defined?*
   The research topic is very interesting and the three main aims of the study are:
   1. To assess the indoor levels of particulate matter in hospitality venues in Cyprus before and after the implementation of the law
   2. To evaluate the role of enforcement
   3. To examine the legislation’s effect on revenue and employment
   Overall, the questions in this paper are well defined, but the answers need to be revised and clarified.
   Response: We have revised the text to make this clear.

2. *Are the methods appropriate and well described?*
   The methods and results section are inappropriate. They need to be described both in the methods and results section in more detail in order for the reader to understand what was actually done and why these methods were chosen.
   Response: We have added additional explanation and we would be happy to provide more detail if needed.

3. *Are the data sound?*
   We are not able to tell because major information is lacking in the paper: who carried or placed the TSI SidePak AMS10 Personal Aerosol Monitors? How many hours on how many days was each venue sampled in periods before and after the smoking bans, etc.
   Response: We have added more detail in the text as requested.

4. *Does the manuscript adhere to the relevant standards for reporting and data deposition?*
   See above 3.

5. *Are the discussion and conclusions well balanced and adequately supported by the data?*
   See above 3.

6. *Are limitations of the work clearly stated?*
   Some limitations of the work are stated in the text, the possible impact of these limitations on the results should be explained more clearly, i.e. more people sitting (and smoking) outside during spring/summer – what does that mean and were these things considered when analysing the data?
   Response: We have revised the paragraph on limitations to address this -- we do not believe that this would have an impact in our analyses; both pre and post ban measurements were done at a time that the indoor areas of the selected venues were busy with patrons (some of these venues actually have only indoor sitting).

7. *Do the authors clearly acknowledge any work upon which they are building, both published and unpublished?*
The authors cite different studies, one statement (part) needs clarification, but the rest is done appropriately.

**Response:** Based on the detailed comments below from the reviewer we made changes and clarified things as needed.

8. **Do the title and abstract accurately convey what has been found?**
The title of the paper is well chosen. When reading the abstract, certain questions arise, which could and indeed should be answered more clearly.

**Response:** We have revised the Abstract to make it clearer.

9. **Is the writing acceptable?**
The quality of written English is acceptable. Some minor changes are needed.

**Major Compulsory Revisions**

**Comment:** Throughout the paper it is not clear which districts of Cyprus the authors talk about and which parts are included in the Cypriot Statistical Service (there are 6 districts in Cyprus, but only 5 are actually included in this paper which is important to mention). Due to the political situation a short explanation should be added as a footnote.

**Response:** We have added a footnote explaining the above point.

**Comment:** Furthermore, the full name of the law or at the least the common short version of it should be mentioned in the beginning of the text, i.e. the original name with an English translation in a footnote to give interested readers the chance to look it up and compare with other legal regulations in this field.

**Response:** The name of the law has been added in the text when it is first mentioned in the Background with a footnote giving the original Greek name and number.

**Comment:** In the Background section, after the first sentence, a reference should be added.

**Response:** We have added relevant references.

**Comment:** In the 3 sentence in the Background section, a number of studies are mentioned, but only one is cited. Therefore, at least three or four of these studies should be cited additionally to give a broader overview of the existing literature and to support the strength of this statement.

**Response:** We have added relevant references.

**Comment:** Sentence 8 and 9 in the Background section points out that there is a debate about the economic consequences of smoking bans; here as well citations or examples are needed in order to support this statement.

**Response:** We have added (both in Background and Discussion) citations and examples supporting this statement.
Comment: When mentioning the approximate number of 600 deaths and the annual economic burden for the health care system per year due to smoking in sentence 10 of the Background section, the overall numbers per year should be mentioned to give a better overview. It should also be noted that the numbers are based on a study that was published in 2007, which means that the numbers could have changed or are not up to date anymore.
Response: The overall number of deaths is provided. We have also added a sentence acknowledging the fact that more data is not available but numbers are expected to still be high.

Comment: If there is any data/information available about the reasons for the high level of cigarette consumption in Cyprus, which is mentioned in sentence 11 of the Background part, it would add a lot to the paper as it is quite outstanding that the numbers are this high.
Response: Factors previously cited to be associated with smoking in youth were added and referenced.

Comment: The Methods part needs major revisions. In the venues part, the authors of this paper have to explain why they chose to use a convenience sample and not, i.e. a randomised sample. Furthermore, it has to be explained why different venues were sampled at different times and how a decision was made about the reasonableness of the times. It is not clear to the reviewer what “relatively busy” means. A table with the distribution of the 35 respectively 21 venues in the four cities should be added. The reviewer strongly criticises that the authors do not explain why only 21 of 35 venues were resampled and how the resampling was undertaken. Besides that, it would be of interest if the owners of the venues were asked for consent and if that was a reason for the smaller number of venues.
Response: We have revised the Methods extensively taking into consideration all of the reviewer’s points. The choice of convenience sampling was explained further, a table has been added with the distribution of venues in the four cities, an explanation as to why only 21 out of 35 venues were selected was provided as well as a statement that no informed consents were collected. As commonly performed in indoor air monitoring studies in the region (partly due to the lack of a comprehensive list of all hospitality venues) venues included in this study were selected based on convenience and popularity as perceived by the researchers. While the aim was to assess all 35 initial venues, this was not possible due to lack of funding. Furthermore, using commonly applied research protocol, shop owners were not engaged as this would potentially lead to a change in the employees’ and patrons’ behavior during the exposure assessment so in order to avoid such changes in behavior consent was not obtained.

Comment: In the Air monitoring part it is important to keep in mind that particles of this size are released due to other causes than smoking. This, as well as the description of “the appropriate methodology” should be mentioned in the second sentence of the air monitoring section.
Response: Both of these points have now been addressed in the Air monitoring part of the Methods section.
**Comment:** Is spending one hour at the venue a reasonable time?, the same question arises about spending two minutes outside the venue before entering and after leaving the venue.

**Response:** This methodology has been commonly applied by other studies that assess indoor concentrations of SHS – in fact, several studies, including the ones in Israel and Norway, use a protocol sampling for only ½ hour. We believe that spending at least one hour is a reasonable time to capture the levels of PM$_{2.5}$, as well as spending 2 min before entering and after exiting the venue to capture background levels.

**Comment:** In the Indoor air quality part it should be explained, why no post-ban measurements took place in clubs.

**Response:** We have added the following explanatory sentence – “due to budget constraints not all venues were re-sampled and no nightclubs were included”.

**Comment:** Regarding the numbers in the Enforcement part, the authors should make sure, that the numbers are well explained as right now there is a difference in the amount (6540 overall checks – 6449 on-the-spot fines – 83 court cases = 8 remaining cases without explanation)

**Response:** We communicated with the Police Department and we corrected the number of court cases to 91 (the reason for the discrepancy was the fact that a court case as indicated by the Police could be towards multiple people).

**Comment:** Please name the highest absolute number of on-the-spot fines (n=x)

**Response:** We added the corresponding number.

**Comment:** Table 2 is missing

**Response:** We deleted the reference to Table 2 – Table 2 was there at an earlier version of the manuscript but we then decided to exclude it. (There is a new Table 2 added now and referenced accordingly.)

**Comment:** Concerning the Economic revenue and employment part, either in this part or later in the discussion, it is inevitable to discuss the reasons for the increase in the turnover indices in the different areas and the decrease of the employment rate (and what effect that has on the results). Furthermore, the term “hospitality industry” should be defined, this is important to understand which venues were included for the statistical analysis of the Cypriot Statistical Service and if that actually corresponds with the selected venues were the research was conducted.

**Response:** The hospitality industry sectors are now defined in the Methods section and the sample of venues where the research was conducted corresponds to that definition. Furthermore, based on revised data by the Cyprus Statistical Service, published in July 2012, there has been an increase in the employment rate so this has been reflected in the text. The changes are not big and we do not know the exact reasons for the increase in the turnover index and the number of employees, but we may suspect that part of the increase is attributable to the implementation of the law.
Comment: For the Discussion section, it should be explained more detailed why enforcement plays a key role in initiating and maintain a smoke-free legislation.
Response: We added an explanation in the Discussion.

Comment: Please give examples for countries were the task of implementing the smoking ban was perceived as relatively easy.
Response: We have deleted the corresponding sentence.

Comment: The authors mention in sentence 2 of the third paragraph of the Discussion section, that their results are in agreement with other studies, please cite 2-3 of these studies in the text.
Response: We have added relevant references.

Comment: Please provide the overall number of on-spot-fines (as a short reminder) in sentence 3 of the third paragraph of the Discussion section.
Response: We have added the overall number of on-spot fines and we have further changed the numbers to be on-spot-fines (and not on-spot-fines together with cases sent to court).

Comment: Sentence 8 of the fourth paragraph of the Discussion section starts with “the authors”, it should be made clear that the authors of the previous mentioned study are addressed and that it is not a conclusion of the authors of this paper. In sentence 9 and 10, other studies are described; this is not obvious and irritating for the reader.
Response: We changed the text to make it clear as to what authors we are referring to.

Minor Essential Revisions

Comment: Enforcement information, first sentence: … Department, which is part of (delete under) the Ministry ...
Response: We deleted the word ‘delete’.

Comment: Conclusion, second sentence: ... that nations with high (high is missing right now) smoking rates ...
Response: We added the word ‘high’.

Discretionary Revisions

Comment: Regarding the abstract, the Background part should mention the year in which the smoking ban was introduced in Cyprus.
Response: We added in the Abstract-Background the date the smoking ban was introduced in Cyprus.
Comment: Regarding the Keywords: all five keywords should be written with capital letters, not only the first four.
Response: We capitalized ‘Viability’ in the Keywords.