Author's response to reviews

Title: Thailand special recruitment track of medical students: a series of annual cross-sectional surveys on the new graduates between 2010 and 2012

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Version: 2 Date: 19 June 2013

Author's response to reviews: see over
Dear editors

We feel grateful to your contribution in well managing this manuscript and also appreciate the three reviewers (Dr Kamolnud Muangyim, Dr Paulo Ferrinho, and Dr Pongpisut Jongudomsuk) for their invaluable comments in making the manuscript have a better shape.

We have revised the manuscript and responded to the reviewers' comments point by point as you can see the responses at the end of this letter. Some key figures have been added. In addition, the language has been re-edited by a native English speaker.

Your kind consideration on this manuscript is highly appreciated. We are looking forward to your response very soon.

Best regards

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Response to Paulo Ferrinho:

1. In title; the word 'batches' is not clear compared to 'cohorts' or 'classes'.
   We have revised the title to make it clearer. Now the title is "Thailand special recruitment track of medical students: a series of annual cross-sectional surveys on the new graduates between 2010 and 2012".

2. In abstract; needs to be more quantitative.
   Some quantitative data have been added in the abstract. For instance, a sentence under Finding subsection is written as 'The majority of students were recruited through the normal track (56-77%) from medical schools in Bangkok (56-66%),...'

3. In abstract; needs English language support/review.
   Already re-edited by a native speaker.

4. In abstract; insert the word 'simple' before 'random samples'.
   It is not in the sense of 'random sampling' as the questionnaires were sent to all graduates presenting in the meeting but they randomly returned the questionnaires. To make it less confusing we decided to rewrite that paragraph. Please see Method subsection, line 41-43.

5. In methods (population and sample size); give more detail about 'randomly selected'. Was it 'simple random sampling'?
   We have revised the Methods section, population and sample size subsection, as follows: 'The questionnaire was distributed to all these new graduates along with their registration documents...', line 132-140.

6. In methods (population and sample size); give more detail about informed consent.
   We don't have informed consent, do we?
   More detail was given in this section. Verbal consent was applied in these surveys. The written consent was not applied in order to keep the anonymity of the respondents. However confidentiality was strictly kept and the survey was conducted under the acknowledgement of The National Ethical Review Committee. Please see line 138-140.

7. In methods (population and sample size); did 'confidentiality of information' mean 'anonymous'?
   The respondents replied to the questionnaire anonymously. For confidentiality, it also encompasses the sense that when we distributed this study's result, individual personal record will not be shown up, and the result of the whole survey will be presented and used only for intellectual purposes. Please see Population and sample size, line 132-140

8. In methods (Q design); were questionnaires in one attachment?
   All the four parts of the questionnaire were arranged in a single attachment. See last sentence of the first paragraph under 'Questionnaire design' subsection, line 160.

9. In methods (data analysis); give the type of multivariate analysis that used in the study.
   More detail was added. See 'Data analysis' subsection, 'Further, multivariable logistic regression...', line 176-178.
10. In results (modes of admission and location of secondary school); give % of the graduates who came from secondary schools located in provincial city.

The figure (23%) was added. Please see the first paragraph under ‘Mode of admission and location of secondary school’ subsection, line 202-205.

11. In results (modes of admission and location of secondary school); the total % of special graduates according to location of secondary schools was 101% (76+11+14).

The figures were changed to 76.5%, 10.5% and 13.5%. Please see the second paragraph under ‘Mode of admission and location of secondary school’ subsection, line 207-211.

12. In table 1; what was the response rate of questionnaires in %?

The figures of response rates were added in table 1.

13. In table 4; there was a wrong range of OR in location of medical school outside Bangkok, 0.94 (5.75-1.52).

In table 4, we have corrected this typo error. It was changed to OR = 0.94, 95%CI = 0.57-1.52.

14. In table 4; what analysis was done? Why not change the three ‘batches’ into one simple model? Keep ‘batch’ as one of the independent variable in the model. What is the formal model and its goodness of fit?

- The model conducted here was ‘multivariable logistic regression with marginal effects’. A sentence mentioning this model was added in the ‘Method section, data analysis subsection’, ‘Further, multivariable logistic regression…’.
- Batch was not considered as an independent variable as it does not meet the criteria stating that only attributes with statistical significance result would be recruited in the model. Furthermore, the three surveys were conducted independently. Including the indicator variable ‘batch’ in the model will be more proper in panel data gathered from the cohort study. By the way, we tried applying indicator variable ‘batch’ in the mode and append all the three datasets together. The table presented here showed only a slight change in the outcomes compared to the results from separate surveys. We therefore decided not to analyse the three batches altogether in a single dataset.

<table>
<thead>
<tr>
<th></th>
<th>All the three batches (1,893 observations)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Odds ratio (absolute margins) 95% Confidence interval P-value</td>
</tr>
<tr>
<td>Batch (VS 2010’s batch)</td>
<td></td>
</tr>
<tr>
<td>• 2011’s batch</td>
<td>1.24 (0.03) 0.91-1.71 0.169</td>
</tr>
<tr>
<td>• 2012’s batch</td>
<td>0.82 (-0.03) 0.61-1.10 0.190</td>
</tr>
<tr>
<td>Special track recruitment</td>
<td>2.42 (0.13) 1.70-3.45 &lt;0.001</td>
</tr>
<tr>
<td>Location of medical school outside Bangkok</td>
<td>0.84 (-0.02) 0.62-1.14 0.261</td>
</tr>
<tr>
<td>Location of residence during 1-15 years old outside Bangkok</td>
<td>1.18 (0.02) 0.75-1.84 0.478</td>
</tr>
<tr>
<td>Location of current residence outside Bangkok</td>
<td>1.29 (0.04) 0.78-2.11 0.317</td>
</tr>
<tr>
<td>Location of secondary school outside Bangkok</td>
<td>1.05 (0.01) 0.71-1.55 0.813</td>
</tr>
</tbody>
</table>

- The goodness of fit was analysed by Hosmer-Lemeshow test and the result was presented at the end of table 4.
Response to Pongpisut Jongudomsuk:

1. **Major revision**--The authors said they used random samples for the study. But there were 576 (32.3%), 872 (59.0%) and 754 (44.9%) cases selected from the population in 2010, 2011 and 2012. It seems that they asked the graduates who accepted to respond to the questionnaire to be samples and they came out in different response rates. It's unclear how they did a random sample.

   It is not in the sense of 'random sampling' as the questionnaires were sent to all graduates presenting in the meeting but they randomly returned the questionnaires. To make it less confusing we decided to rewrite that paragraph..., line 132-140.

2. **Minor essential revisions**--There are fourteen competencies being asked but the figure 2 showed only competencies. The 14 competencies were listed in the Method section, second paragraph under Questionnaire design subsection, line 162-167. The competencies listed in figure 2 were result of factor analysis that had the 14 competencies grouped to five domains.
Response to Kamolnud Muangyim:

1. Are the methods appropriate and well described, and are sufficient details provided to replicate the work? Yes they are, but it will be better if the author could describe how they got those 5 questions representing attitude toward rural practice as well as those essential medical competencies.
   More detail about how the questionnaire was developed and checked was added at the beginning of 'Questionnaire design subsection'. Please see line 144-145.

2. Are the data sound and well controlled? Yes, they are. Yet I noticed something for further investigation. The economic status of the graduates’ families, since the penalty for bleaching the medical education contract is MONEY. In addition, according to the theory of attitude (Fishbein and Ajzen. 1975), there is relationship between attitude and intention. But the authors did not analyze them, though they already had the data. Furthermore, I had learnt from a medical statistician in LSTM during my PhD about the over-estimation of Odds ratio.
   In this case, Incidence Rate Ratio (irr) might be better to describe the result.
   • We did not have detail data of economic status of graduates' parents and the questionnaire was not designed to explore it. This is because information about income and asset is not straightforward. Acquiring the financial information with sound accuracy needs different approaches. That is why we used education level of parents as a proxy for this. However we do agree with the point that this is very important issue which may be further explored in further studies.
   • The primary focus of this study is to thoroughly compare CPIRD/ODOD with the normal track graduates not only their rural attitudes but also intention to fulfil the three-year obligation and medical competency. There are other studies which give useful insights about the intention to work in the rural area and attitudes towards rural work e.g. Pagaiya N at al in 2011. The audience can track it through the reference No.22.
   • The odds ratio can be overestimated as you mentioned. As a result, we have added figures about 'absolute probability (absolute margins)' in table 4 along with the odds ratio which is a relative probability in itself.

3. Are the discussion and conclusions well balanced and adequately supported by the data? Yes, they are. Yet I have additional comment. Since choosing job is subject to labour market situation, the discussion of the results would be more intellectual if the medical labour market at that time would have been taken into account.
   We have added a few sentences about the labour dynamics at the end of 'Discussion section', line 338-342.

4. Introduction, paragraph 6, add comma after CPIRD at 3rd line.
   Done, please see line 110.

5. Discussion, paragraph 1, first 3 lines, should be divided into 2 sentences.
   Done, please see line 277-279.