Author's response to reviews

Title: The impact of economic factors on migration considerations among Icelandic specialist doctors: a cross sectional study

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Author's response to reviews: see over
Thank you for the important and valuable comments from the reviewers. We have now revised the paper according to their queries per below.

**Reviewer I**

**General comments:**
Firstly, it lacks relevant details in some sections. For example, it appears the economic recession in Iceland triggered by the GFC provided the impetus for the authors to explore whether economic factors influence migration considerations of specialist doctors. One would expect that the authors specify, at least, some of these cost containment measures implemented in the health sector as a result of the economic crisis and demonstrate how these affect the emigration intentions of specialist doctors but surprisingly no cost containment measure has been highlighted even as a background information… Without highlighting these specific cost containment measures and discussing their impact the migration considerations, this analysis is not different from many others that look at factors affecting migration decision of individual health workers in other settings.

This is an important point and we have now provided a broader background information regarding expenditure cuts and other economic factors which has affected the Icelandic doctors following the economic crisis, in the Background (p. 4) and Discussion (p.10-11). We have also added some sentences regarding ‘economic stress’ and its known effect on well-being in the Discussion (p.11-12).

Secondly, there seems to be a missing link between the study and the health system which undermines its relevance. It would have been helpful to provide a brief background data on the current health workforce including specialists to enable readers fully appreciate the potential effects on the health system of emigration of large number of specialist doctors.

We have provided some more background information on the Icelandic health care in the Background (p. 4.). Also we have included the sentence: ‘Because of Iceland’s small population, it has quite a few specialists in each speciality. Thus, Iceland is particularly vulnerable to emigration by specialists’, and included some data on number of specialists and patient admissions (p. 12-13) to show the potential effects of emigration of large number of specialist doctors.

Thirdly, the paper is weak on discussing the policy implications of the findings – yes two-third of Icelandic specialists have considered moving overseas and economic factors have played a key role in these considerations - so what? What implications has this got for the health system and what should policy makers do?

We have discussed possible policy implications in more details (p. 13-14)
The main points are:
1. A shortage of physicians may result in a downward spiral of shortage leading to heavier workloads for the doctors who remain.
2. The influence of social network abroad can foster further migration.
   - Our findings (that so many doctors have considered migration) should be taken serious by policy makers before it’s too late (and the snowballing of migration has started).
3. The national health care services should focus on making the working conditions and rate of pay compatible with those overseas to a) attract doctors finishing their
specialist training abroad, and b) limit the migration of doctors that work abroad in vacations.

4. Doctors should be more involved in politics because a) Studies have shown that they are willing to consider costs in clinical decisions as long as their patients do not suffer from it. Doctors are in a unique position to evaluate the impact of cost containment on clinical care and b) Studies have shown that becoming involved in politics can prevent organizational withdrawal and increase job satisfaction among employers. This should be an important and prioritized issue for the national Medical Association.
Finally, the overall level of clarity of the paper needs to be improved. I have picked up few instances where further clarifications are required in the specific comment below.

Specific comments

Abstract –
i) “….. so research on this topic is of importance for the upholding of doctors.--- I suggest you use the term „retention“ rather than „upholding“.

ii) The method section under abstract needs to be expanded to include the variables used in this study and data analysis procedures. Done p. 4

Background –
i) “With the exception of psychiatry and primary care, Icelandic physicians have to obtain their specialist training in other countries…..”--- It worth making a direct statement here that specialists medical training, except for those mentioned, are not available in Iceland. Done p. 4-5

ii) “Based on this background, we hypothesised that extensive cost containment initiatives at work and worries about private finances would influence Icelandic doctors’ contemplation of moving abroad…..”---- see earlier comments on cost containment measures under general comments. Done, see earlier comments.

Methods –
i) “All doctors in Iceland who had registered their email address with the Icelandic Medical Association, 96% (n=1024) of all working doctors, received our electronic survey in March 2010”.----- what type of electronic survey – plain text email, attachments to email or web-based surveys such as Survey Monkey? Done (‘..were sent our Internet-based electronic survey in March 2010, with four follow-up reminders’) p. 6

ii) “….and approved by the National Bioethics Committee (ref: VSNb2010010025/03.7).” --- approval number not necessary. Approval number deleted p. 6

iii) This is discretionary revision – you may revise the sub-titles under methods as “participants, data collection and data analysis” Done p. 6

iv) Under work position, your categories of “hospital doctors, general practitioners, private practice specialists”, etc. is confusing. I thought the study is about specialist doctors so what has the hospital doctors and general practitioners got to do with it? This needs to be clarified.

Job position among specialists has shown to be of importance for job satisfaction (references 16 and 17) and we have changed the sentence to: ‘Job position might also have an effect by influencing job satisfaction and thus migration consideration’ [16,17] (p. 5) In the methods we explain that in the Nordic countries general practice/family medicine is a medical specialty. (p. 7) In the discussion we have added: ‘We found no evidence that job position affected emigration considerations. This emphasizes the fact that such considerations are quite widespread and generalized in the medical profession.’ (p. 12)

Results –
i) This is discretionary revision – “Thirty-three per cent of the specialist doctors (n=155) had not considered moving abroad” ---- since the study is about migration intentions, I suggest you report the findings about those who have considered moving first. Done p. 8

ii) “16% had considered it but it was not possible for them to move (n=73)”--- why was it not possible for them to move? You need to clarify what you mean by „were able to move“ and „were not able to move“. Were some of them under any government bonding?

The reason for ‘not being able to move’ was, unfortunately, not included in our study. We have included in the result section: ‘16% had considered moving but, for unspecified reasons, had been unable to.’ (p. 8)
We have now included: less satisfied than the doctors who had not considered moving (p. 8 and 9)

Discussion –
i) The discussion section needs to be tightened. For example, “A recent review concluded that among the most-cited factors for physicians: mobility is financial motivation” ---- a recent review by who and of what? Done p. 11

ii) “A review from 2001 concluded that the combination of job stress and dissatisfaction can be so powerful that some of the highly trained...”---- a review by who and of what? Done p. 13

iii) A key issue which has not been raised and discussed is whether the study explored considerations to migrate for a short period of time or for a long time. This is crucial because there appears to be a typical pattern of short term migration of Icelandic health workers (commuting, I think is the term) particularly to Norway and other Scandinavian countries. The intention to migrate of the specialist doctors may not be incongruent with existing tradition if their intention is to move for only a short period of time.

This is a good suggestion and we have included the variable: ‘working abroad during vacations’. The reason for this is explained in the introduction (p. 5), the description of the variable is in the Methods (p. 8) and in table 2. This variable is discussed in the result section (p. 9) and the discussion (p. 12).

Table 1 –
i) Column 3 – “All doctors in Iceland” --- should read „all specialist doctors in Iceland‟ (Done p. 21)

ii) The 48 doctors who didn’t specify their specialty, shouldn’t they be part of the „other‟? If that is not possible you may consider labelling them as „specialty not indicated‟ in column 1 and put the 48 under „Our sample‟ in column 2 so that the total becomes 467 instead of 419.

At the end of the table we have included: ‘Total doctors, including those with specialty not indicated’, to have the total number of doctors (467) in the end. (p. 21) Including them further up in the table would give a wrong picture of the distribution of the different specialties.

Reviewer II

2. Revisions
2.1 Major compulsory revisions:
2.1.1 The Discussion section includes mention of Mullan’s “emigration factor”. The statement ”. . . the emigration factor was 23 in 2005 (318 emigrants and 1060 immigrants)” seems to me to be somewhat misleading. It is highly unlikely that there were 1060 immigrant doctors in, or arriving in Iceland in 2005. The data required for input to Mullan’s formula are the number of Icelandic doctors known to have emigrated over some period (Mullan’s A), and the number of doctors actually working in Iceland in 2005 (Mullan’s B), not the number of doctors immigrating into Iceland in 2005. If A=318 and B=1060 then the emigration factor was 23 as the authors state, but
the wording used is, in my opinion, possibly misleading or confusing. Similar comments apply to the emigration factor statement for 2012. I suggest the authors revise their wording of this section of the paper.

**The wording has been revised. (p. 10)**

2.2 Minor essential revisions
2.2.1 In Table 1 the column heading "All doctors in Iceland" should be "All specialists in Iceland". (Done p. 21)

2.3 Discretionary Revisions:
2.3.1 I think the Methods section would be easier to read if the details of the “All-doctors survey” were presented first and then the authors explain that for this paper they used only the data from the specialist respondents. (It would, I think, be a good idea to include in this paper the findings relating to the other, non-specialist doctors and thus make it a comparative study – but the authors may have good reasons for not doing this.)

*We have specified that 'We sampled only specialist doctors because most non-specialist doctors must migrate to become specialists’ (p. 6).*

2.3.2 A chart or table showing emigration rates for specialists and non-specialists over a number of years would underline the statement “emigration of specialists has never been a problem”.

*Unfortunately there are no such data available before the crisis.*

**Additional changes:**

-We have deleted all text (one sentence p. 5 and one sentence p. 10) regarding the reference ‘Solberg IB, Tómasson K, Aasland O, Tyssen R: Icelandic doctors’ job satisfaction in times of economic crisis and a comparison with Norwegian doctors’ (and deleted the reference), because the paper has not been published yet.

- In the end of the strengths and limitations we have added: ‘Furthermore, because this is a cross-sectional study, we cannot make inferences about the causal effects of the statistically significant predictor variables.’ (p. 14)

- In the beginning of the discussion when mentioning all the significant predictors we have added: ‘These factors were equally important for both male and female doctors; there were no significant gender interactions’ (p. 10)

We now very much hope that this manuscript can be accepted for publication in your Journal.

On behalf of all authors.

Yours sincerely

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