Author’s response to reviews

Title: The development of a new corporate specific health risk measure and its use in investigating the relationship between health and well-being and employee productivity.

Authors:

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Author’s response to reviews: see over
Dear Sirs,

Please find enclosed my revised manuscript, “The development of a new corporate specific health risk measure and its use in investigating the relationship between health and well-being and employee productivity”. The following is a point by point response to the comments of the reviewers:

**Reviewer 2**

General comment; I am not sure whether the reviewer received a copy of the questionnaire together with my paper, it may be that this was omitted. I believe this may, at least in part, explain some of the misunderstandings that form the basis of his critique. The HWB questionnaire is not a productivity measure, it is a health risk appraisal (HRA). I used a productivity measure (WHO-HPQ) as part of the validation process. I did not make this clear in the manuscript and I have therefore changed my description of it.

a). Additional information and description has been added to the methods section, including more detail about the questionnaire development phases and question choices.

b). As mentioned above, the HWB is not a productivity measure. I have changed the text to more clearly reflect this. In addition, I have added an explanation of why the WHO-HPQ was chosen as the productivity measure.

c). Additional information on the steps taken to get to the final questionnaire have been included as suggested.

1). As mentioned above, changes have been made to the methods section to reflect the reasons behind choosing the HPQ to validate our questionnaire against. Briefly, other productivity questionnaires tend to focus upon the impact of a disease or medical conditions upon productivity, we were keen to just measure productivity and then relate that to health risk as measured by the HWB. In addition a number of high profile organisations are using the WHO-HPQ, particularly in the USA (personal communication with Sean Sullivan of IHPM and Ron Kessler of Harvard Medical School)

2). My use of “health status measures” is ambiguous, as already mentioned, I mean health risk appraisal (HRA) and not health related quality of life (HRQL) or productivity. I have changed the relevant parts of the text to better reflect this.
3). Attempts have been made to remove “over-arching superlative statements”. Changes to the text have been made to better reflect the fact that the HWB is not a productivity measure, but an HRA.

4). The reason for me including SF-36 and GHQ in my initial introduction to the subject was not to compare them to productivity measures, or even to an HRA, but to illustrate that they do not provide appropriate data to specifically direct corporate health interventions. The reviewer correctly states that they should not be used in such a way, however in my experience of consulting for corporations they often are.

5). Some of the HWB scales are broadly similar to those of the SF-36 because the HWB is an HRA not a productivity measure.

6). The output from the WHO-HPQ is a calculated “productivity decrement”, i.e. the proportion of the week that the individual is not working optimally, either because they are absent or because of “presenteeism”. Good health equates to low productivity decrement (and vice-versa). Rather than change this round I have kept the original phraseology that Kessler et al. use.

7). I feel the background that I use as an introduction to the article is sound. It is the central tenet of the work of both the Institute for Health & Productivity Management (IHPM) and the Health Research Organisation (HERO) in the US, the recognised global leaders in Health & Productivity Management. The world is changing, the majority of employees in the developed world are knowledge workers, we need to maintain them as we used to maintain our machinery! My aim when conducting this research and writing this paper was to bring business closer to science (and vice-versa). Too often the two exist separately and this shouldn’t be the case. It is clear that the health and well-being of employees has never been more important to corporations as it is today. I want business leaders to understand this better and also for scientists and medics to realise that they have a major role to play in shaping the future of the work environment. Lofty aims I know, idealistic and naïve – possibly, but I can but try. My specific writing style, and some of the phraseology I use, is intended to be understood and to appeal not just to researchers but also to corporate executives.

8). I have changed the description of stress and sleep dysfunction to being “issues” rather than diseases.

9). I have expanded the methods section to incorporate more detail on the process of questionnaire development and the statistical software package used for analyses. I am not sure what additional information the reviewer feels is necessary – factor analyses and inter-
item correlations were performed with the software as were regression analyses using general linear model as described in the text.

10). As suggested, “patient” characteristics table has been included.

11). Grammar has been revised and the final manuscript (introduction and discussion) has been reviewed by a Cambridge University English graduate.

12). P values truncated as suggested

13). Slang and superlatives removed from text.

**Reviewer 1**

1). I have attached an “appendix” to the paper that contains the questions and scoring logic. The questionnaire will be free for all to use.

2). Sentences starting with numbers have been changed to the spelt numeral.

3). Table 1 has been enhanced, hopefully this makes the link between the 10 domains of the questionnaire and the key business issues identified clearer.

4). When developing the questionnaire we wanted to make the areas covered as relevant to key business issues as possible (often called KPIs – key performance indicators). We did not want to measure things that could not be directly linked with KPIs. Without exception, all of the managers and executives that we interviewed stated that (i) increasing productivity, (ii) improving customer satisfaction/service, (iii) reducing the costs associated with ill health and (iv) reducing future potential business risk were amongst their top KPIs. I have made some changes to the text to bring this concept out further.

5) & 7). Changes to the text have been made and a respondent characteristics table has been added. This provides further information about the demographics of the respondents.

6). As with the SF-36, a high score on the HWB and its sub-indices indicates “good” health. Therefore the correlations are in the positive direction.

8). The reason for including the single work effectiveness question is to provide the surveying organisation with a quick and easy way of seeing whether, within their population, there is a relationship between the health of employees and their performance/productivity. The correlation between the productivity decrement (as measured by the WHO-HPQ) and the single effectiveness question allows this to be done. If necessary the surveying organisation can then use more in depth productivity questionnaires to quantify this further. Changes to the text have been made to make this point more obvious.
In addition, I have made table 1 on my manuscript an additional file as it occupies more than 1 side of A4. The table has references associated with it and I have included these in the same file.

I hope this provides an adequate response to the reviewers’ comments.

Yours sincerely,

Dr Peter Mills