Author's response to reviews

Title: Is undergraduate physiotherapy study a risk factor for low back pain? A prevalence study of LBP in physiotherapy students

Authors:

Leah J Nyland (eahnyland@hotmail.com)
Prof Karen A Grimmer (karen.grimmer@unisa.edu.au)

Version: 4 Date: 22 Jun 2003

PDF covering letter
Response to Reviewers

Title: Is undergraduate physiotherapy study a risk factor for low back pain? A prevalence study of LBP in physiotherapy students

Authors: Leah J Nyland and Karen A Grimmer
MS ID: 2643775851476087

We thank both reviewers for their insightful and helpful comments. We are disappointed that Reviewer 2 does not consider this paper to be of interest. In Australia, ensuring good spinal health in young people is a Commonwealth Government imperative, given the high individual and societal costs of spinal pain in adult workers in industry in our country. This study was an attempt to quantify LBP experiences in a group of undergraduate students who are about to enter an industry that has reported high prevalence of spinal pain, and is believe to have high attrition from physiotherapy as a result of this [21-23]. Perhaps this is not a phenomenon in Reviewer 2’s country, although it is a consistent story from other Western countries [17-22]. As such we believe that the data presented and the questions raised in this paper are important when considering the spinal health of young health workers, and how they can be better protected from injury during training.

We have addressed all reviewers’ comments where possible, and trust that these amendments make this paper more appropriate for possible publication in the BMC Musculoskeletal Journal. We specifically address the comments of both reviewers below.

In line with Reviewer 2’s suggestions, we reworked all analysis and present the findings in a (new) Table 5. This re-analysis provided us with the opportunity to refine our cut points in continuous data, for use in binary form variables for entry into logistic regression. This re-analysis highlighted the need to discuss specific age-related risk, and also highlighted risks associated with the educational exposure of ‘treaing patients’ as well as confirming the general educational exposure of ‘sitting looking down’.

Reviewer 1
Compulsory Revisions:
The introduction has been amended to include the recommended additional prevalence information on Australian physiotherapists (19-20), and information on the general population prevalence of young people’s back pain (11) from the Australian Bureau of statistics 2001 Census data.

In line with the reworked analysis, we have amended the Methods, Results and Discussion chapter significantly. We have acknowledged the possibility that other university students may also suffer from LBP, given the importance of the general educational exposure ‘sitting looking down’. We also discuss the significance of the educational exposure variable ‘treating patients’ with LBP, in line with the potential for increasing exposure in the fourth year of physiotherapy study to real workplace situations. This exposure was not truly captured because of the student-driven construction of the survey questions, and the timing of the survey (conducted in the early part of the student year). Given the timing of the survey, the fourth year students who responded to this survey would not have had much experience of these exposures at this time. This actually heightens the importance of the LBP prevalence findings in this study, as by the end of their training, students may well have increased
their exposure to LBP risk because of the increased number of hours of occupational exposure in the latter part of their fourth year.

We have clarified the calculation of the exposure variables in the Methods Section. We have included two new tables and one Figure in the paper to address reviewers’ comments, and with space and editorial requirements in mind, we have tried to contain as much other relevant additional information in the text.

To specifically address reviewers’ concerns regarding the usefulness of the our measure of occupational risk, the subjects’ responses were recalculated by classifying reported occupation using a modification of the Ovako Working Posture Analysis System[36], and multiplying this by the total reported hours of exposure. Despite using the new occupational exposure classification, no differences in association between LBP and occupational risk were found. We confirm that the sport exposure data was calculated on an ‘any sport’ basis (i.e. sport ever).

We include the Appendix with the paper.

**Additional revisions:**

We revised the Introduction paragraph on exposure and risk, in line with reviewers’ comments on risk attribution and student physiotherapists.

We clarified an important issue that the educational exposure questions in the survey were determined by the students themselves. In hindsight we perhaps should have included information about occupational exposures from studies such as by Ellis, and Jackson and Liles, however we suspect that because of the small exposure (at time of survey) of many of the students to the physiotherapy workplace, their responses to additional questions on manual handling, and work postures, may not have been helpful. Probably a catch 22!!!

We have clarified the similarities of prevalence at 12 months with the Cromie study (and discuss reasons for the lack of similarity with the West and Gardner study), and propose that while the differences between studies in the lifetime prevalence measure may be influenced by measurement differences and exposure times, the similarity between this study, and the other Australian study on graduate physiotherapists, could reflect that once LBP becomes established, it remains a regular feature of physiotherapy life.

We have emphasised the importance of considering all undergraduate students’ LBP, and the causes associated with it, with a view to reducing future workplace injuries to the LBP, and the prevalence of LBP in adult workers.

**Reviewer 2.**

**Compulsory revisions**

We have provided what is possible in an analysis of the non-responders. We have discussed (as far as possible within our knowledge of university student behaviours) the expectations of the physiotherapy course at this institution, as a means of establishing the homogeneity of the responders and the non-responders.
We believe that we have addressed the first concern of Reviewer 2 in our response to Reviewer 1. We are concerned that we have not been able to obtain Reviewer 2’s thesis (as cited), as it seems that this document would have provided us with useful information. It is not available through our library system in Australia, and thus we are unable to compare her data collection methods with ours, or with other studies.

We have reformatted the Tables as requested.

As Reviewer 2 misinterpreted the figures presented in Table 2 (i.e. the actual number in the sample compared with the possible number of students for survey), it is possible that other readers will do the same. The table has been completed with N and % of total for each category.

Type of task is considered widely to be a risk factor for low back pain [11,23,24]. We sought to quantify the exposure to different occupational tasks during the students’ lifetime in terms of task type and postures associated with it, as a means of quantifying broad exposures to occupational risk. Our reworking of the data using the Ovako Working Posture Analysis System assisted in providing a more useful quantification of occupational risks, however we found no association with LBP prevalence using the recalculated values.

The question regarding educational exposures relates to the time frame of the previous month. Thus it cannot be related to any other measure of LBP except the one month prevalence measure. This time frame was established by the students in the focus groups, when they determined their educational exposures. Reviewer 2 is correct in questioning the relevance of testing and reporting a whole range of variables as predictors of LBP prevalence. We have refined the list of variables tested on an a priori basis (and provide supporting information in the text) and we related it more specifically to the prevalence measures of LBP. We have retested the putative exposure variables, and described this process more thoroughly in order to make the testing process, and the results, clearer.

We have provided all the confidence limits for the proportions presented in Table 3.

As stated, we have reconstructed all statistical analysis, and have aligned Table 1 with the findings presented in the (new) Table 5. Readers can now make their own judgements about risk attribution from Table 5. Where we identified overall significant findings, we then tested for gender strata differences. This information is reported in the text as appropriate.

The abstract has been amended to reflect the findings of the re-analysis.

We trust that these corrections and clarifications will improve the acceptability of this paper.

Sincerely