Author's response to reviews

Title: Effect of Working Characteristics and Taught Ergonomics on The Prevalence of Musculoskeletal Disorders Amongst Dental Students

Authors:

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Author's response to reviews: see over
Reviewer: 1 Comments to the Author

Major compulsory revisions
There are some areas in the manuscript where the use of statistics is incorrect or misleading.
For example:

- in the 3rd paragraph of the section on Study Population under Methods, the authors state that P values of less than 0.05 and 0.001 were taken as statistically significant. It is sufficient to just state that values less than 0.05 were taken as statistically significant.
  Response to reviewer’s comments:
  The authors have set P<0.05 as standard measure to assess statistical significance through out the manuscript

- in the 3rd paragraph of the results, the authors indicate that there is a significant difference but give p>.001. Of course, this should be P<0.001 and, based on my comment above, I suggest that this be reported as P<0.05.
  Response to reviewer’s comments:
  The authors have set P<0.05 as standard measure to assess statistical significance through out the manuscript

- in other parts of the manuscript, exact probabilities are reported. it would be preferable to report the p values consistently, and I would suggest using p<0.05 rather than the exact probabilities.
  Response to reviewer’s comments:
  The authors have removed the exact probabilities and set P<0.05 as standard measure to assess statistical significance through out the manuscript.

- in the 2nd paragraph under 'Working hours', it is stated that students who used vibrating instruments 'for 0.72 times more number of hours are likely to report having discomfort in hands and fingers.' This does not seem to be correct.
  Response to reviewer’s comments:
  The explanation of OR has been corrected in the text.

Minor essential revisions
There are still many grammatical errors and problems with English style in the manuscript that need to be addressed to ensure clarity. I strongly suggest that the authors seek assistance to edit the paper.
Response to reviewer’s comments:
Modifications
The manuscript has been reviewed by an English Language lecturer for grammatical errors and general editing.
Major Compulsory Revisions

Abstract

• Should specify whether the study examined the point- or period prevalence. This comment also apply to the context of the manuscript.

  Response to reviewer’s comments:
  Within abstract and the body of the text authors have added that the study was designed to assess the point prevalence of WMSD amongst the dental students.

• The authors collected data from clinical and non-clinical year students but the writing make me understand that only the results from clinical year students were reported here. I don't see how the authors utilize data from non-clinical year students here. Omit?

  Response to reviewer’s comments:
  There are two objectives of this study; primarily to assess point prevalence of WMSD amongst clinical and non-clinical dental students (table 2). To assess true occurrence or development of WMSD which may due to clinical training can only be proven when non-clinical year students are used comparative group of student for clinical year students, therefore the data collected for non-clinical year student was only meant for WMSD prevalence. The second part of the study is to assess the possible correlation of work environment characteristics and working hours, this part is only applicable on clinical year students as the non-clinical year students have not been exposed to these factors.

Introduction

• The reason stated in the manuscript for conducting this study is not fully clear (i.e. ...fewer studies were attempted among the dental students...). The reason for conducting the study should relate to lack of relevant knowledge rather than small number of studies.

  Response to reviewer’s comments:
  The primary reason stated in the introduction that musculoskeletal pain was negatively correlated with years of experience and it has been hypothesized that more experienced dentists learn to adjust their work posture to avoid such problems, or that those dentists with severe WMSD have left the profession.

Therefore, this reflects that even dental students can manifest early signs of WMSD during years of training. On basis of this reason the authors have added that the prevalence of WMSD has not been thoroughly addressed for dental students who are essential future workforce in dentistry.
Methods

• I confused who was the study population of this study (All dental students enrolled in the 5 participating dental schools in their third, fourth and fifth year were invited to participate in the survey...in addition to first and second year dental students in the participating schools as comparison group).

Response to reviewer’s comments:
Both the first and second year dental students and third fourth and fifth year dental students were part of this study for respective objectives of the study stated earlier. The first and second year dental students were only limited as comparative group; it is to compare the point prevalence of WMSD amongst nonclinical years (1st and 2nd year dental students) with clinical years (3rd, 4th and 5th year) in assessing the prevalence of WMSD. While to assess association with environmental factors, working hours or loupes and WMSD, the only students which can participate of this are clinical year dental students.

• More details regarding statistical analysis should be added, e.g. how the regression was carried out in step-by-step fashion, how several comparisons were conducted.

Response to reviewer’s comments:
Statistical analysis details were added and addressed within the manuscript

Binary logistic regression was used in this study where the finger and hand discomfort was the dichotomous criterion variable and the predictor variables were the number of working hours and the number of hours using vibrating instruments. The goodness of fit of the model was assessed using Hosmer–Lemeshow test.

Results

• The result of pilot study should also be reported.

Response to reviewer’s comments:
The results of the pilot study has been added to the manuscript, yet the authors feel that the results of the pilot study is not adding significantly to the manuscript.

• All the missing data were checked through running frequencies... What was the procedure used to manage missing data?

Response to reviewer’s comments:
The majority of questions had 5 or fewer missing values. An accuracy check of 20 randomly selected questionnaires from both the baseline and the follow-up phases yielded no errors after data checking and cleaning procedures. The missing values were less than 5% and were replaced by Median sample.
•Using a table to demonstrate demographic data may be easier to comprehend.

Response to reviewer’s comments:
A table for demographics has been added, now table 1 represents the characteristics of the dental students.

•Please describe the statistical use for the finding ‘The relation between Gender and reporting of WMSD was significant as female students were more likely to have WMSD during clinical years (P=0.002).

Response to reviewer’s comments:
Chi-square test was used to establish association between gender and reporting of WMSD. This has been added in the reporting.

•Table 2 can be omitted because the authors repeated the items in the context.

I understand that the association between sitting variables and LBP was demonstrated using the logistic regression analysis. Usually the table is needed for logistic results and in the table there should have a reference group (OR =1.00) to make it comprehensive. This comment also applies to the rest of variables examined in this study.

Response to reviewer’s comments:
The table 2 has been omitted and the items representing within each domain of work characteristics have been added within the text. Since the objective of the study was to assess the prevalence and association of work characteristics with respect to body region, the authors found the only body region which showed as discomfort was in hands and fingers when long working hours and frequency of vibrating instrument was correlated. All the other body regions were omitted.

•“The fourth part of the questionnaire addressed the taught ergonomics and prevention of WMSD. Responses in relation to this part were elaborated in table 5” Some conclusion should be helpful.

Response to reviewer’s comments:
Key findings within the result section of taught ergonomics has been added.

Discussion
•More specific suggestions related to the findings of the study rather than general recommendation (e.g. health promotion, institutional intervention) would be better.

Response to reviewer’s comments:
Authors have added recommendation as a heading in conclusion section. More specific recommendations has been added to reduce discomfort for the body regions (neck/upper back and lower back) which has been reported to have highest prevalence of WMSD.

•One significant limitation of cross-sectional study is that the causal relationship between interested variables and WMSD cannot be identified. This limitation should be included in the discussion.

Response to reviewer’s comments:
Using cross-sectional study design for this study can be considered as one of the main limitation and has been added towards the end of the discussion.
Others • There are several typographic errors.

**Response to reviewer’s comments:**
The manuscript has been reviewed by an English Language lecturer for grammatical errors and general editing.