Occupational low back pain and the sitting position: effects of labor kinesiotherapy

Lombalgia ocupacional e a postura sentada: efeitos da cinesioterapia laboral

Rev Dor 2011;12(4):308-13.

Mr. Editor,

The above-mentioned article published by Freitas et al.[1] addresses a very relevant subject for health professionals involved with workers' health care. In this study, the authors present the effect of an intervention (10 labor kinesiotherapy sessions) on some variables, including low back pain. Results have shown that, in comparing beginning and end of the experiment, there has been decrease in the percentage of workers affected by such outcome from 100% to 68.4% ($p = 0.001$).

What calls the attention is the statistical procedure adopted by the researchers, in this case the Chi-square test. Although referred comparisons involve the treatment of categorical data (presence or absence) and, in fact, the Chi-square test is widely used for this purpose, unfortunately in this case it is not adequately presented. The chi-square test in contingency 2 x 2 tables (in addition to allowing the use of Yates correction [needed when the association is significant], which decreases the final test value, thus making it more conservative), establishes comparisons between observed and expected proportions of both tested variables[2]. Following the same principle applied in other tests (Student's t test for dependent samples and Analysis of Variance for repeated measures), the dependence between both analyzed variables (before and after intervention) prevents the application of a test not taking this point into consideration. In this sense, for being a paired analysis (the same individual compared to himself)[3] the most indicated statistical procedure would be the McNemar test, which analyzes the "discordance" between moments, that is, subjects who presented the outcome in the beginning and no longer have it, and vice versa. In addition, McNemar test composition is based on contingency 2 x 2 tables and it would be unfeasible to analyze graphs 1 and 2 data, which should be restructured for this table configuration.

It should be noted that such issue does not diminish the work of the authors, but should alert graduation and post-graduation students about the importance of being careful when using statistical procedures and about the concerning disinterest of students in this topic.

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LETTER TO THE EDITOR

REPLY

Occupational low back pain and the sitting position: effects of labor kinesiotherapy
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Rev Dor. 2011;12(4):308-13

We have read with interest the letter sent to the editor in charge of Rev Dor about the application of the Chi-square test in the above-mentioned article and we would like to rectify some parts of the original article and to add data not included in the results.

In method, NcNemar Chi-square test was applied to analyze qualitative variables. To calculate NcNemar statistics tables were regrouped to compare agreements and disagreements between observation pairs in the two moments. Last, but not least, Student's t test for paired data was applied to compare quantitative variables. Softwares were Excel 2000 and SPSS v 8.0. All conclusions took into consideration a significance level of 5%.

In results, change "p" values in table 1 to respectively:

0.344

1.000

1.000

0.001

Graphs "p" values remain unchanged.

We consider that the identification of most adequate statistical tests to treat our experimental data determines the appropriateness and relevance of interpretations and conclusions extracted from the study. We reaffirm the importance of knowing statistics not only in the academia, but also by all those looking for a better understanding of facts and perspectives around them, be it in health, politics, economics, etc.

It is also worth stressing that, taking into consideration that Rev Dor audience is made of beginners and experienced readers in the clinical field, it is necessary to increase the limits of figures and tables (total = three), since very often we have difficulties to condense results in a clear and objective way, to equally meet all levels of readers.

Yours sincerely,
The authors