Author's response to reviews

Title: Assessment of musculoskeletal conditions and their impacts in the adolescent population: adaptation and validation of a questionnaire.

Authors:

Élise P Legault (elise.legault@uqtr.ca)
Vincent Cantin (vincent.cantin@uqtr.ca)
Martin Descarreaux (martin.descarreaux@uqtr.ca)

Version: 2  Date: 28 May 2014

Author's response to reviews: see over
Dear Mrs. Peterson,

Thank you for your email on April 29th 2014, in which you provided us with the reviewers’ suggestions regarding our paper titled “Assessment of musculoskeletal symptoms and their impacts in the adolescent population: adaptation and validation of a questionnaire”. We appreciate the comments and suggestions that will improve the manuscript for revised submission to the BMC Pediatrics.

You will find below, the research team’s responses to the comments made by the reviewers, and the page numbers of the revised manuscript that corresponds to the revision. A copy of the revised manuscript is also appended. The revisions are indicated in grey highlighted text for ease of identification.

We hope that our responses/revisions will satisfy their concerns. If you have any questions or comments, please do not hesitate to contact me via email (martin.descarreaux@uqtr.ca) or phone (819-376-5011 #3791). We look forward to hearing from you.

Warm regards,

Martin Descarreaux DC, PhD | Professeur Titulaire
Chaire de Recherche en Chiropratique FRCQ
Département des Sciences de l'activité physique | Université du Québec à Trois-Rivières
3351 Boul. des Forges, C.P. 500 | Trois-Rivières, Qc. | G9A 5H7
Tél : 819-376-5011 p.3791 | Fax : 819-376-5092
Email: martin.descarreaux@uqtr.ca
Reviewer: Cynthia Peterson  
Version: 1  
Date: 25 October, 2014  
Reviewer’s report:

• Major Compulsory Revisions

1. The French version of the NMQ-E questionnaire was used but there is no reference to a paper that translated and validated it into French following standard procedures. This is critical. Was the proper 6 step procedure of Beaton, Bombardier followed for the original questionnaire used for this study? Please provide this reference if it exists. Also state in the methods section that the French version was properly translated and culturally adapted according to standard procedures if this is true. If no such paper exists, unfortunately it calls the rest of the study into question.

Response:
We do agree that the cross-cultural adaptation process proposed by Bombardier and Beaton is the proper way to translate a questionnaire when translation is the only adaptation to be performed. The Nordic questionnaire developed by Kuorinka, however, has been translated, used and validated several times in French. In each case, the questionnaire content and format were also adapted to fit the need of a specific study. In those cases, the back translation process is not very helpful, as the content of each question and possible answers are modified. In many instances, these adaptations have been conducted in collaboration with the author of the original version (Kuorinka I). In fact, in a recent article, Epstein et al. (Including Beaton DE) (2013) showed that a committee contributes substantive improvements to the cross-cultural adaptation process, whereas the back translation may not be a necessary step of the process.

We have now referenced the original reference presenting the adapted and modified versions of the Nordic questionnaire (P.7 and 14).

2. Was ethics approval not needed? There is no mention of ethics approval in the paper. It does state that written informed consent was obtained. Please confirm that ethics approval was waived if this is true.

Response:
Thank you for pointing out this issue. The ethics certificate number is CER-11-174-06.03, and a sentence was added to the article. (P. 9)

• Minor Essential Revisions

1. The clinic records were used as a ‘gold standard’. How do you know these records are complete and accurate? Are regular audits performed? Perhaps in a teaching clinic records are more closely monitored. However, with no details supporting the clinic records as a gold standard, this assumption is worrying. Normally the validity would be tested against other similar questionnaires. Were none available? This is a Limitation.

Response:
No other similar questionnaire was available as a gold standard. We chose to use the University’s chiropractic clinic patient’s files because the records are highly standardised and regularly audited (in fact, there is an ongoing audit process looking at patient’s files standardization and quality of provided care). Even though the University’s clinical records are
very detailed and include the assessment of the patient’s musculoskeletal symptoms, they are not considered as a gold standard in the current literature, and this does represent a limitation. Additional details regarding the standardisation of the clinical records have been added to the methods section (P.10) and the limitations related to the validity assessment have also been added to the discussion section (P.16-17).

2. The test-retest data collections occurred prior to and after the clinical consultation. It is not stated whether or not a treatment occurred during this consultation. It must be assumed that it did not, but it is not stated. Is that the policy of the clinic not to treat on the initial visit? Please include this information.

Response:
We cannot assume that a small proportion of our study participants did not receive any treatments between tests, as some patients may have sought outside care in between the two administrations of the questionnaire. As raised by the reviewer, the University’s outpatient clinic policy is not to treat on the first visit unless necessary (acute conditions).

Because the questionnaire does not measure the intensity of the symptoms, nor does it measure point prevalence, we believe that possible treatments may have limited effects on the data. Only the 6-month prevalence and impacts were measured, therefore the occurrence of a treatment should not have influenced the participants’ responses.

3. Although basically well written, there are still numerous errors throughout the paper. One common improvement in the English would be to always write ‘associated with’ rather than ‘associated to’. This occurs frequently in the paper. Please have a native English as first language speaker carefully correct the grammar. Several times the subject (singular or plural) does not match the verb (singular or plural).

Response:
“Associated to” has been changed to “associated with” as suggested and the article’s grammar has been revised. A complete revision of the manuscript was completed by an English speaking technical writing professional.
Reviewer: Nicholas Henschke
Version: 1
Date: April 16, 2014
Reviewer's report:

Major Compulsory Revisions

1. It is difficult to grasp the main purpose of this adapted questionnaire from the introduction. The justification for using an adapted NMQ to estimate injury prevalence is not well supported. While there are differences in the clinical presentations and causes of sports injuries and musculoskeletal symptoms (e.g. pain conditions), this questionnaire does not seem to be able to distinguish them. There is no question on how the injury/symptoms were caused, so perhaps this justification needs to be re-formulated in the introduction and discussion.
   
   Response: Thank you for this valuable comment. We realise that our introduction was misleading and that although injury and symptoms are closely related, they do remain distinct concepts. We made the necessary changes to properly support our study's purpose (p.4-6 and 17).

2. Similar to the above point, the words “injury”, “symptoms”, and “conditions” seem to be used interchangeable throughout the introduction and methods. It would be helpful to specify the purpose of the screening questionnaire and use consistent wording.
   
   Response: As mentioned before, injuries and symptoms are distinct and we realise that the use of these two terms in the article was confusing. The study’s questionnaire measures musculoskeletal symptoms rather than injuries, therefore the appropriate changes were made throughout the article regarding this specific issue. The word “injury” is still used in the article, but only when referring to the articles that specifically studied injuries. Additionally, a paragraph was added to the article describing the purpose of the questionnaire, which will be used in a future study comparing musculoskeletal symptoms prevalence in adolescent athlete and non athlete populations (p.6 and 17).

3. The description of the participant sample is lacking and unclear. Was there two separate groups recruited for reliability and then validity testing? Further details on the physical activity level or history of sports injuries (if available) to describe the sample(s) would be helpful.
   
   Response: The participant samples do overlap each other. A flow chart was added to add clarity to the description of the recruitment process (see Figure 1, in attachment to the manuscript). An additional table was also added to further describe the samples (see Table 1 p.22). Physical activity level was not recorded, but information regarding the samples’ 6-month prevalence of symptoms was included in the table, as suggested by the reviewer.

4. The flow of patients through the study is unclear. The results for test-retest reliability states that of 55 included participants, 16 did not return the second copy. Please provide details of whether this is considered an appropriate sample size for a reliability study.
   
   Response: As mentioned in response to the previous comment, a flow chart was added to add clarity to the description of the recruitment process (see Figure 1, in attachment to the manuscript). Several studies investigating the reliability of dichotomous variables in the context of clinical diagnosis
or surveillance have used the kappa (κ) statistic for such purpose. In the present study, the sample size requirement was based on the probability of detecting a statistically significant kappa coefficient of .40 with a power of .90 and assuming the Null Hypothesis Value of Kappa to be .00. With the current sample size, we were therefore able to detect any statistically significant kappa coefficient that was considered moderate or better. The drop outs may have affected the power and ability to detect significant differences. Post-hoc power calculation showed that with 39 participants, we were still able to detect moderate agreement between the two sessions where questionnaires were completed.

5. How many participants were included in the criterion validity analysis? Did they all have a history of injury recorded in clinical records?

Response:
Thirty-four participants were included in the criterion validity analysis; that number was added to the Table 3 (p.24) to add clarity to our analysis. Furthermore, every participant except two either had a diagnosed musculoskeletal condition or a history of pain or injury recorded in their clinical records. The two participants with no diagnosed condition or history of pain or injury were consulting for reasons not affecting the musculoskeletal system.

6. Similarly, from the participants, what was the frequency of musculoskeletal symptoms?

Response:
As suggested by the reviewer, a table describing the samples’ 6-month prevalence of musculoskeletal symptoms was added to the article. (see Table 1, p.21).

7. The discussion needs to include more details on the potential implications of this study, such as when and in what context the use of this questionnaire would be beneficial.

Response:
The survey of musculoskeletal symptoms in the adolescent population either related to a sport injury or not, is an important component in detecting and preventing musculoskeletal injuries or pain and their related consequences. The potential implications are now presented in the introduction and the discussion (p.4-6 and 17).

Minor Essential Revisions

1. Both tables should report the number of participants included in the analyses

Response:
The number of participants has been added to both tables (see Table 2, p.23 and Table 3, p.24).

2. Table 1 should show the number of participants reporting each type of musculoskeletal symptom

Response:
The number of participants reporting symptoms to the 9 different body regions has been added to Table 2 (originally called Table 1) (p.23).

3. It is not clear from Table 2 whether the numbers in the cells refers to the number of participants or number of symptoms

Response:
The numbers in the table refer to the number of diagnosis rather than the number of participants. Specifications have been added to Table 3 (originally called Table 2) (p.24).
Discretionary Revisions

1. For clarity, it would help to have a copy of the original Extended Nordic Musculoskeletal Questionnaire (NMQ-E) available for readers. This is discussed extensively but some may not be so familiar with it. Perhaps a copy can be used as supplementary material.

Response:
Since the questionnaire is easily available on-line and because we have contacted the authors only to get a permission to adapt the questionnaire, it was decided not to include the original version.