

Dear Dr. Ze-Mao Gong,

We are grateful for the opportunity to revise our paper according to the reviewer's comments. We have reviewed the comments received and found them very constructive and full of interesting insights. To better structure our revisions in the paper according to the recommendations from the reviewer/editor, we will present the changes and comments chronologically.

We have added the following running title: "*Saebye et al. Validation of the Danish MSTS questionnaire.*"

Under the title Institutional review board statement have added the follow paragraph: "*The study was preapproved in accordance with the national ethical guidelines, since this type of study does not require approval in Denmark, furthermore the study is in accordance with the Helsinki Declaration.*"

Following paragraph "*All patients gave their verbally informed consent for participating in the study, however signed consent was not required according to Danish guidelines, since the study was based on questionnaires.*" was added under the title Informed consent statement.

As requested we have reformatted the references, so they are now superscripted as well as having PubMed ID and DOI.

Regarding the comment from reviewer 03708308 "The authors should report the types and the number of the surgeries performed." We recognize the importance of reporting these data, since it gives a valuable knowledge of the participating patients in the study. However, this information is unfortunately not available in this study, as we do not have the permission to retrieve this information from the patients' records.

Furthermore, we have added the requested Article highlights:

1 Research background

The Musculoskeletal Tumour Society Score (MSTS) questionnaire is a physician/patient-completed questionnaire designed to assess functional outcome for patients with sarcomas in the extremities. The MSTS questionnaire was originally developed in English. Over the past decades there has been

increased focus on the aptness of questionnaires to measure correctly. This also includes the aptness of questionnaires after being translated from one language to another.

2 Research motivation

To ensure that the Danish version of the MSTS questionnaire measures the same aspects of functional outcome in sarcoma patients as the English version, it is important to validate the measurement properties of the Danish version of the MSTS questionnaire and compare it to other language versions of the questionnaire. Furthermore, cultural differences need to be considered during the translation process, as this is a part of ensuring the original measurement properties. This rigorous process provides the possibility to compare results from national studies with other international studies.

3 Research objectives

The objectives of this study were: (1) to validate the Danish version of the MSTS questionnaire, and (2) to investigate the correlation between functional outcomes as measured by questionnaires, such as the MSTS, and the objective measurement, Timed Up & Go.

4 Research methods

The translation of the MSTS was conducted in accordance with international guidelines. Patients, age 18 or above, operated for sarcomas and aggressive benign tumors were consecutively invited to participate in the study. The psychometric properties of the Danish version of the MSTS were tested in terms of validity and reliability and for the risk of floor or ceiling effects. Spearman's rank coefficient was used to compare the MSTS lower extremity version with the objective test, Timed Up & Go.

5 Research results

The upper extremity version of the MSTS questionnaire demonstrated an excellent intra- and inter-rater reliability. The lower extremity version of the MSTS questionnaire showed an excellent intra- and inter-rater reliability. A ceiling effect, however, was found in both versions. Both versions of MSTS questionnaire were shown to have good validity. The MSTS questionnaire showed a possible presence of a measurement error.

A poor correlation was found between the objective measurement, Timed Up & Go, and the functional outcome measured by questionnaires.

6 Research conclusions

The Danish version of the MSTS questionnaire was found to have good reliability and validity, however a substantial ceiling effect as well as the possibility of measurement error were identified. The Danish version of the MSTS questionnaire can be used to measure functional outcome in sarcoma patients and to compare these results with other international studies.

7 Research perspectives

The measurement errors and ceiling effects are concerns which are not to be overlooked. It is highly recommendable to further investigate these issues and the measurement properties of the MSTS questionnaires, such as its aptness in detecting significant clinical changes in the functional outcome.

Finally, we would like to bring to your attention that the manuscript has been revised by a linguist from a European Union institution using an American English standard.

We hope that you find our revised manuscript satisfactory for publication.

Best regards,

Casper Kloster Pingel Saebye on behalf of the authors

Corresponding author:

Casper Kloster Pingel Saebye

Dept. of Experimental Clinical Oncology

Aarhus University Hospital

Nørrebrogade 44

8000 Aarhus C

Denmark

Email: caspersaebye@clin.au.dk