INTRODUCTION

Starting in the 1960’s, total hip arthroplasty (THA) has been a revolutionary treatment for elderly patients with osteoarthritis, exhibiting good long-term results, and is today among the orthopedic surgeries of greatest success. Younger patients submitted to THA manage to regain quality of life including activities of considerable physical demand. Around 800,000 THA’s are performed worldwide on an annual basis, and it is estimated that this number will increase in the future. It is a surgical procedure widely used for the treatment of ailments of the coxofemoral joint (hip joint), whether degenerative, inflammatory or traumatic.

In the last few years changes have occurred in the outcomes used in the analysis of the effectiveness of clinical or surgical treatments in orthopedics. Outcomes such as quality of life related to health, functional capacity, pain and satisfaction scales have been emphasized as they enable the analysis of the state of health and manifestations of disease in individuals’ lives. Consequently instruments, questionnaires and scales that address this type of variable were developed and published. These can be classified as: generic and specific. The generic ones quantify the patient’s of his or her general state of health, while the specific ones target specific areas of the body and can measure function with greater responsiveness than a scale that assesses the state of health as a whole.

Among the clinical scores developed to evaluate hip ailments, one that merits special emphasis is the Harris Hip Score, a scale recognized and used worldwide. The Harris Hip Score is a specific evaluation tool, originally developed in 1969 to assess THA results, and widely used as a result comparison method. It was compared with the Larson and Shepard system, and reproducibility and objectivity were found. It presents a scale with the maximum of 100 points, including evaluation of pain, function, deformity and motion. Pain and function have the highest weight (44 and 47 points), range of motion and deformity are of primary importance, receiving 5 and 4 points respectively. Function was divided up into daily life activities (14 points) and gait (33 points). A total score below 70 points is considered a poor result, 70 to 80 reasonable, 80 to 90 good and 90 to 100 excellent.

Studies are available on the responsiveness of the Harris Hip Score in the evaluation of results after hip arthroplasty. The results show high responsiveness in the rates for the Harris Hip Score when compared with generic scales such as the Short Form-36 (SF36).
Most questionnaires used in orthopedics were developed in the English language. When there is an assessment protocol described and validated in another language, it is necessary to standardize the cross-cultural equivalence methodology in the language to be used for this protocol to be employed. Historically, the adaptation of tools prepared in other language was limited to the simple translation of the original or, exceptionally, to the literal comparison of the latter with retrotranslated versions. Nowadays, however, it is acknowledged that, if measures must be used by means of cultures, the items should not just be well translated linguistically, but should also be adapted culturally, to maintain the validity of the tool’s content at a conceptual level. With the development of translation and cultural adaptation methods it is absolutely possible for a tool developed for use in a given language and culture, to also be used, after translation and adaptation, in another language and in another cultural context. The aim of this study is to translate and to culturally adapt the Harris Hip Score assessment tool to the Portuguese language.

MATERIAL AND METHOD

The method of translation and cultural adaptation of the Harris Hip Score used the criteria described by Guillemin et al., which involved four stages: initial translation; back-translation; examination of the versions with preparation of a consensus version; and commented pre-test with development of the final version. Initially the Harris Hip Score questionnaire in its original English version was translated into Portuguese by two bilingual independent sworn translators (T1 and T2), who had Portuguese as their native language and fluency in the English language. One of the translators was supposed to have knowledge in the area of health. After this the two versions were compared and analyzed, arriving at the synthesis of the two translations. In the next stage the synthesized version was translated back into the English language by another two bilingual translators (R1 and R2), whose native language was English, with fluency in the Portuguese language and residing in Brazil. The translators responsible for the back-translation were not supposed to be familiar with the original version of the questionnaire in English. Next the two translations obtained were assessed by a committee, formed by translators, health care professionals (one physician and three physiotherapists) and a Portuguese teacher in order to correct discrepancies by means of comparison with the original text and to prepare a consensus version. The questionnaire items had the idiomatic and conceptual semantics preserved. With the consensus version the pre-test was conducted with the participation of patients from the hip group of the Department of Orthopedics and Traumatology of the Hospital de Mionerodídia de São Paulo in treatment for a hip ailment, for evaluation of comprehension, acceptability of the tool and for the performance of any necessary alterations. This pre-test was carried out with 30 patients. After this a meeting was held among the questionnaire applicants to point out the difficulties encountered by the patients in the consensus version and to suggest terms of easier understanding. The final Portuguese version of the Harris Hip Score was prepared with a basis on suggestions, including some explanations between parentheses for those expressions considered hard to understand. Afterwards the questionnaire was reapplied to the same patients. The stages of the process and the final Portuguese version were approved by the authors of the original version.

RESULTS

Table 1 presents the items of the original translation version, of the back-translations and of the consensus version of the HHS (pre-test). The versions prepared by the translators (T1 and T2) for the items and sub-items of the assessment questionnaire were identical, with exception: In item I (Pain) and sub-item D, the translators opted to simplify the expression “stronger than aspirin” using “analgesico simples” (simple analgesic), which is better suited to our milieu. In item II (Function) and sub-item A, the translators opted for translation T2 for the term “marcha” (gait), apparently more appropriate than “modo de andar” (style of walking) (T2) In item II (Function) and sub-item B4, we prioritized translation T1 over T2, simpler, “tomar transporte público” (take public transportation) than “entrar em transporte público” (enter public transportation).

During the performance of the pre-test mentioned with the 30 participants, difficulties were verified in the understanding of some expressions (gait, limp and severe). Further alterations were made, in our attempt to improve the cultural adaptation of the questionnaire. As our goal was semantic and non-literal equivalence, the expression “marcha” (gait) from the pre-test was substituted by “modo de andar” (style of walking). The term “claudicação” (limp) was substituted by “mancar” (limping) and “severo” (severe) by “grave” (serious). These alterations were suggested in consensus by the authors after the application of the questionnaires. There was no apparent difficulty with any other term during the pre-test.

In the reapplication of the new version of the questionnaire there was understanding by 100% of the patients as far as the semantics were concerned. The final version of the HHS prepared after the pre-test, and with the layout used in the study, can be seen in Appendix 1.

DISCUSSION

There is no doubt that the use of assessment protocols is necessary in scientific studies, comparison of results, analysis of the effectiveness of clinical and surgical treatments and obtainment of increasingly trustworthy results. Several tools for evaluation of the state of health and quality of life have been developed and used by researchers all over the world. The Harris Hip Score is a widely used and specific assessment tool for the hip joint. It presents a scale with a maximum of 100 points, including evaluation of pain, function, deformity and motion. Although used worldwide, including Brazil, it had not yet been adapted culturally to the Brazilian situation. The aim of this study was to translate and culturally adapt the Harris Hip Score assessment tool.
### Table 1: Items of the original version, of the translations, and of the HHS consensus version (pre-test).

<table>
<thead>
<tr>
<th>Versão original</th>
<th>Traduções</th>
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<tbody>
<tr>
<td>I. Pain (44 possible)</td>
<td>T1</td>
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<tr>
<td>A. None or ignores it</td>
<td>44</td>
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<tr>
<td>B. Slight, occasional, no compromise in activities</td>
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<td>C. Mild pain, no effect on average activities, rarely moderate pain with unusual activity, may take aspirin</td>
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<td>D. Moderate pain, tolerable but makes concessions to pain</td>
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<td>E. Marked pain, serious limitation of activities</td>
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<td>F. Totally disabled, crippled, pain in bed, bedridden</td>
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<td>1. Dor (44 possíveis)</td>
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<td></td>
<td>A. Nenhuma ou ignora</td>
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<td>B. Leve, eventual, não compromete as atividades</td>
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<td></td>
<td>C. Dor brando, sem impacto nas atividades habituais, raramente dor</td>
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<td></td>
<td>D. Dor moderada, tolerável, mas faz concessões à dor. Alguma limitação da atividade ou trabalho habitual. Ocasionalmente pode necessitar de analgésico mais forte que aspirina</td>
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<td></td>
<td>E. Dor acentuada, grave limitação das atividades</td>
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<td></td>
<td>F. Totalmente incapacitado, aleijado, dor na cama, confinado ao lar</td>
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<td></td>
<td>II. Function (47 possible)</td>
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<tr>
<td></td>
<td>A. Gait (33 possible)</td>
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<td>B. Activities (14 possible)</td>
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<td>C. Absence of deformity points (4) are givens if the patient presents:</td>
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To determine the over-all rating for range of motion, multiply the sum of the index values X 0.05. **Record Trendelenburg test as positive, level, or neutral.**
To determine the score for general range of movement, multiply the sum of the index amounts by 0.05. Record the Trendelenburg test as positive, level or neutral.

<table>
<thead>
<tr>
<th>Tabela 1 - Continuação.</th>
<th>Retranslutions</th>
<th>Versão de Consenso</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Flexion 0—45 degrees X 1.0</td>
<td>R1</td>
<td>R2</td>
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<tr>
<td>B. Abduction 0—15° X 0.8</td>
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<tr>
<td>C. External rotation under extension 0—15° X 0.4</td>
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<tr>
<td>D. Internal rotation under any extension X 0</td>
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<tr>
<td>E. Adução 0—15° X 0.2</td>
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<td>IV. Range of movement (index value is calculated by mul-</td>
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<td>tiplying the degrees of possible movement of each ar-</td>
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<td>ch by the respective index)</td>
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<td>To determine the score for general range of movement,</td>
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<tr>
<td>multiply the sum of the index amounts by 0.05. Record</td>
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<tr>
<td>the Trendelenburg test as positive, level or neutral.</td>
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</table>

Para determinar a pontuação geral da amplitude de movimento, multipli- 
car a soma dos valores do índice por 0.05. Registre o teste de Trende-  
lenburg como positivo, nívelado ou neutral.
## APPENDIX 1

### Harris Hip assessment tool

#### I. Pain (44 possible)
- **A)** None or ignores it 44
- **B)** Slight, occasional, no compromise in activities 40
- **C)** Mild pain, no effect on common activities, rarely moderate pain with unusual activity, may take simple pain medication 30
- **D)** Moderate pain, tolerable, accepts limitations caused by pain. Some limitation of common activities or work. Occasionally takes pain medication stronger than aspirin 20
- **E)** Pronounced, serious limitation of activities 10
- **F)** Totally disabled, crippled, pain in bed, bedridden 0

#### II. Function (47 possible)

##### A. Gait (33 possible)
- **1. Limp**
  - **a)** None 11
  - **b)** Slight 8
  - **c)** Moderate 5
  - **d)** Severe 0

- **2. Support**
  - **a)** None 11
  - **b)** Cane for long walks 7
  - **c)** Cane most of the time 5
  - **d)** One crutch 3
  - **e)** Two canes 2
  - **f)** Two crutches 0
  - **g)** Not able to walk 0
    (specify reason: ____________________)

- **3. Distance walked**
  - **a)** Unlimited 11
  - **b)** 6 blocks 8
  - **c)** 2-3 blocks 5
  - **d)** Indoors only 2
  - **e)** Bed and chair 0

##### B. Activities (14 possible)
- **1. Stairs**
  - **a)** Normally without using a railing 4
  - **b)** Normally using a railing 2
  - **c)** In any manner 1
  - **d)** Unable to do stairs 0

- **2. Shoes and socks**
  - **a)** With ease 4
  - **b)** With difficulty 2
  - **c)** Unable 0

- **3. Sitting**
  - **a)** Comfortably in ordinary chair one hour 5
  - **b)** On a high chair for one half hour 3
  - **c)** Unable to sit comfortably in any chair 0

- **4. Enter public transportation 1**

#### III Absence of deformity points (4) are given if the patient demonstrates:
- **A)** Less than 30° fixed flexion contracture
- **B)** Less than 10° fixed adduction
- **C)** Less than 10° fixed internal rotation in extension
- **D)** Limb length discrepancy less than 3.2 centimeters

#### IV. Range of motion (index values are determined by multiplying the degrees of motion possible in each arc by the appropriate index)

##### A. Flexion
- 0—45 degrees X 1.0
- 45—90° X 0.6
- 90—110° X 0.3

##### B. Abduction
- 0—15° X 0.8
- 15—20° X 0.3
- over 20° X 0

##### C. External rotation in extension
- 0—15 X 0.4
- over 15° X 0

##### D. Internal rotation in extension
- any X 0

##### E. Adduction
- 0—15° X 0.2

To determine the overall rating for range of motion, multiply the sum of the index values X 0.05. Record Trendelenburg test as positive, level or neutral.
Even though clinical protocols are efficient, validated and tested, when merely translated from the source language, in a literal manner, they might not be adapted to the cultural situation of the country in which it is to be used. For this reason the process of translation and cross-cultural adaptation is necessary, also aiming, whenever possible, to maintain the semantic, idiomatic and conceptual form, preserving the original idea.13,14

In this study the participants opted to make as few changes as possible in the structure of the original tool, not including or excluding items from the scale, to avoid promoting further alterations of the psychometric properties, allowing the comparison of versions.16-18

A method that can facilitate the translation for terms tangible to the general population, avoiding jargon and technical terms, is the use of a translator without a background in the area of health, as utilized in the study.16

During the application of the questionnaire in the pre-test we encountered difficulties in the comprehension of some terms not known by the general population, such as “marcha”, “claudicação” and “severo”, which were substituted by “modo de andar”, “mancar” and “grave”, in order to adapt it to the patients’ understanding. The final version was prepared among the authors with these changes, and the questionnaire was reapplied, verifying optimal applicability with 100% of understanding on the part of the population. This phase is of extreme importance to the cross-cultural adaptation process, as it allows us to identify whether the translation was applicable, and whether the terms used were adequate for the population.

The cross-cultural adaptation strives to ensure consistency in the validity of content between the versions of the questionnaire (original and in the target language). Subtle differences in living habits in the different cultures might make an item from the questionnaire more or less difficult to understand, and may alter the psychometric and statistical properties of the tool.16-18

CONCLUSION

Tools prepared in a foreign language require a careful cross-cultural adaptation process for their use in a socio-cultural reality. The stages covered for preparation of the Brazilian version of the Harris Hip Score allowed the delivery of this additional standardized tool in the assessment of the quality of life of patients with hip ailments, with good comprehension and acceptance among the patients tested.

ACKNOWLEDGMENTS

To all the patients that contributed to the performance of this study.

REFERENCES