ORIGINAL ARTICLE

Cross-cultural adaptations of the Oxford-12 HIP score to the French speaking population

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Summary

Background. — An objective measurement of surgical procedures outcomes is inherent to professional practices quality control; this especially applies in orthopaedics to joint replacement outcomes. A self-administered questionnaire offers an attractive alternative to surgeon's judgement but is infrequently used in France for these purposes. The British questionnaire, the 12-item Oxford Hip Score (OHS) was selected for this study because of its ease of use.

Hypothesis. — The objective of this study was to validate the French translation of the self-assessment 12-item Oxford Hip Score and compare its results with those of the reference functional scores: the Harris Hip Score (HHS) and the Postel-Merle d'Aubigné (PMA) score.

Materials and methods. — Based on a clinical series of 242 patients who were candidates for total hip arthroplasty, the French translation of this questionnaire was validated. Its coherence was also validated by comparing the preoperative data with the data obtained from the two other reference clinical scores.

Results. — The translation was validated using the forward-backward translation procedure from French to English, with correction of all differences or mistranslations after systematized comparison with the original questionnaire in English. The mean overall OHS score was 43.8 points (range, 22—60 points) with similarly good distribution of the overall value of the three scores compared. The correlation was excellent between the OHS and the HHS, but an identical correlation between the OHS and the PMA was only obtained for the association of the pain and function parameters, after excluding the mobility criterion, relatively over-represented in the PMA score.

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Discussion and conclusion. — Subjective questionnaires that contribute a personal appreciation of the results of arthroplasty by the patient can easily be applied on a large scale. This study made a translated and validated version of an internationally recognized, reliable self-assessment score available to French orthopaedic surgeons. The results obtained encourage us to use this questionnaire as a complement to the classical evaluation scores and methods.
Level of evidence: level III. Diagnostic Study.

Introduction

Assessing the results of their interventions is a permanent preoccupation of orthopaedic surgeons. Total hip arthroplasty (THA) lends itself perfectly to this long-term clinical follow-up. The ideal is an assessment method that is as precise and reliable as possible, with two objectives: evaluate the progression of the patient's condition and make all the appropriate comparisons between groups of patients. This assessment method should also be easy to implement and not significantly raise costs. Finally, it is essential that the parameters used to evaluate the operated hip not be too strongly biased by concomitant factors (lumbodynia, gonalgia, etc.), whose frequency is far from insignificant in this population group.

Putting these three principles into practice can be challenging, as shown by the profusion of assessment methods currently available, with a clear progression toward self-administered questionnaires allegedly translating the diverse components of patient quality of life after hip replacement. Before they can be used in daily practice, these questionnaires must be validated in terms of both their wording and their results, which in turn must be adapted to the language, culture, and lifestyle of the patients to whom it will be administered. Of the questionnaires currently available, often designed by physicians (psychiatrists, rheumatologists) and poorly adapted to surgical practice, many have turned out to be awkward and difficult to administer in everyday practice; some are too confidential to use. In contrast, the 12-item Oxford Hip Score questionnaire (OHS-12), was introduced in 1996 by a team of orthopaedic surgeons [1] and immediately seemed to us to be well adapted to daily orthopaedic practice. This questionnaire could provide French orthopaedic surgeons with an effective, easy-to-use evaluation tool complementing the traditional Postel-Merle d'Aubigné (PMA) [2,3] and Harris Hip Score (HHS) [4]. The value of this score has encouraged wide national dissemination undertaken by the authors at the behest of the French Hip and Knee Society (Société française de la Hanche et du Genou [SFHG]).

The protocol followed for this study required two successive steps:

- translating the questionnaire into French according to the international recommendations [5];
- validating this French version with two reference clinical scores in France, the PMA and the HHS. This second step was conducted for a series of 242 patients before surgery, with systematized statistical analysis and interpretation of the results.

Material and methods

The 12-item Oxford Hip Score items

Jointly developed by the public health and orthopaedic surgery departments at the University of Oxford, the original OHS-12 was published in 1996 [1]. Its validity was then demonstrated by its promoters by comparing it to the Short Form-36, the Arthritis Impact Measurement Scale (AIMS), and the Charnley score [6]. Later, this validity was confirmed by other teams in the original language (English) [7,8]. However, validation of such a tool in a language other than the language in which it was conceived first requires assessment of the quality of the translation. This had already been done in Dutch for the 12-item version of the OHS [9], and in Italian and Swedish for the 12-item Oxford Knee Score [10,11].

It should be remembered that for each of the 12 questions, the five graduated responses from the best (one point) to the worst (five points) give a total of 12 points for the best result possible and 60 points for the worst result possible. This inverted scale is somewhat disorienting, but no official correction has been published to date by the authors of this questionnaire. We therefore reproduced the original scaling system in the French version.

French translation of the OHS-12

After agreement with the authors of the original OHS-12 (J. Dawson and D. Murray), three orthopaedic surgeons and a medical translator specializing in orthopaedics translated the questionnaire into French. The French-language questionnaire was then submitted to a group of patients to ensure that each term used was understood, adapting certain situations of daily life by taking into account details related to French habits. This translation was then validated by a professional medical translator specializing in orthopaedic surgery,[1] using the forward-backward translation methodology from French to English with correction of any differences or mistranslations after systematic comparison with the original questionnaire in English (Appendix 1: Oxford12HS.VF, questionnaire OHS-12 in French). The questionnaire was then ready to use with future patients.

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Assessment protocol for the clinical series

The objective was to validate the French version of OHS-12 in a real situation for patients undergoing total hip replacement. The clinical series had to be comparable to the series usually published in the literature, with a sufficient number of cases for statistical validation from different institutions to prevent any bias related to the personality of a single evaluator. The questionnaire's items were systematically compared with the scores habitually used — the PMA and the HHS — to assess the relevance of using the OHS-12 as an assessment tool for French patients. The choice of the preoperative period was dictated by the need for responses that allowed as much variety as possible, more divergent than for patients who had already undergone surgery, the majority of whom were usually satisfied. The objective here is not to evaluate the surgical results of the arthroplasty procedure, but to compare the different scores simultaneously for a given patient. As for categorizing the overall results, we adopted the classification proposed by Kalairajah et al. [8]: excellent if the OHS-12 was less than 19 points, good (19—26), moderate (27—33), and poor (if > 33). For the other scores, the overall results were grouped for the PMA as excellent (= 18 points), good (17—15), mediocre (14—13), and poor (if < 13) and the HHS as excellent ($\geq$ 90 points), good (from 89 to 80 points), mediocre (from 79 to 70 points), and poor (if < 70 points).

Thus, 242 patients planning a total hip replacement in two orthopaedic surgery departments (Clinique de l'Yvette private hospital in Longjumeau, Medical-surgical private hospital Clinique de Bruay-Labuissière) were requested to fill out the OHS-12 questionnaire during the preoperative consultation. Simultaneously, the PMA and HHS scores were determined by the surgeon (CD, JAE). The data collection protocol was strictly defined: the questionnaire was filled out by the patient, with no participation on the part of the surgeon or collaborators, with the assistance of a family member if necessary. The questionnaire could be filled out during the consultation or at home, but had to be done before surgery and as close as possible to PMA and HHS determination. The exclusion criteria were only applied to patients who could not respond to the questions coherently, either because of physical or mental deficiencies or because they did not speak French adequately. However, the factors of co-existing co-morbidity or disability were not considered as exclusion factors, because they were assumed to interfere similarly on the reputedly objective (PMA, HHS) and subjective (OHS-12) scores. There was a probability that the patient would confound the true factors causing disability, stemming either from the hip to be operated on or another source, notably spinal. This confounding factor was not analyzed in this study.

The series studied included 242 patients consecutively undergoing total hip arthroplasty, 59% women and 41% men, with a mean age of 68.3 years (range, 37.6—95.2 years, S.D., 12.4 years). The main etiology was primary osteoarthritis in 86% of cases. This standard series was highly representative of a typical series of candidates for this procedure. In addition, the reliability of the questionnaire was tested independently for another annex series of 76 consecutive patients: each of them accepted to fill out the questionnaire twice, first during the consultation, then 3 days later, with the completed questionnaires returned by post. This time lapse was intended to allow patients to at least partially forget the responses given the first time, while preventing a significant change in their health and their treatment. This absence of any disturbing factor between the two questionnaires was verified in all cases.

Statistical interpretation of the results

The statistical analysis was done by one of the researchers (BMJ) on the data collected from the two groups of patients. The results were aggregated and anonymized following the confidentiality rules for medical data in agreement with the ethics guidelines. A methodology for the statistical analysis was finalized to assess the different properties of the questionnaire and the reliability of the French version, according to the recommendations made by Guillemin et al. [12]. The distribution of the scores was visualized in graphic form (histogram and box charts) and calculated (mean, median, standard deviation, range, and percentiles). The ceiling and floor effects were determined.

With regards to the questionnaire reliability, an intra-class correlation coefficient was calculated and a test-retest procedure was carried out, based on the following null hypothesis: the difference between the results on each of the questions after a three-day interval is nil. For the OHS-12 score validation, internal coherence, corresponding to the fact that the same hip condition was measured through the different questions of this new score, was assessed by calculating the Cronbach alpha coefficient.

The score's validity was established in relation to the estimation to which the score obtained corresponded to the patient's actual condition. Since this was a questionnaire, we analyzed the three types of validity:

- content validity, aiming to determine whether the questionnaire tests all the aspects related to the hip condition and not to another factor, had already been verified in the original article [1];
- convergent criterion validity, the extent to which the results are correlated with other, previously established evaluation systems, determined by comparing the score with the PMA and HHS; Spearman correlation coefficients (non-normal distribution) were calculated;
- construct validity, the extent to which the questionnaire measures the expected changes, was also established.

All of these statistical tests were carried out using the Stata™ software, version 9.2 (Stata Corporation, College Station, TX, USA, 2007) with a significance level set at 0.05.
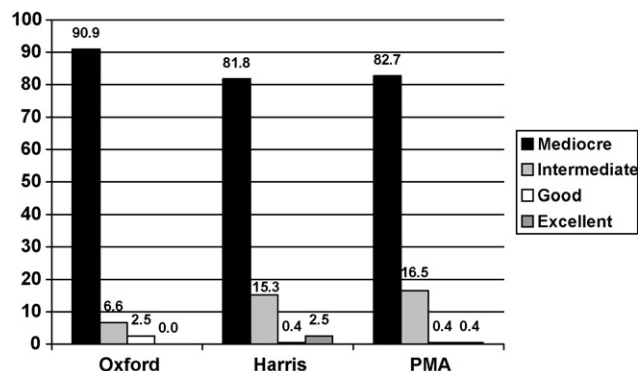
Results

Validation of the translation into French

The French translation of the OHS-12 score is presented in Appendix 1. The forward-backward translation process from English to French and then from French to English brought out no particular problems adapting the original English questionnaire. The objective of the backward translation was to confirm that the French formulation of each

Table 1 Differences observed between the results of the questionnaire after 3 days (significant difference if $p < 0.05$).

Question number	P value	Question number	p value
1	0.424	7	1
2	1	8	0.109
3	1	9	0.549
4	0.549	10	1
5	0.727	11	1
6	0.180	12	1

Figure 1 Distribution of Oxford-12 scores of the patients waiting for a total hip replacement and comparisons with the Postel-Merle d'Aubigné and Harris Hip scores.

of the 12 questions faithfully translated the meaning of the question in English, the whole meaning of the question, and nothing but the meaning of the question, excluding any parasitical bias while taking into account the cultural and semantic specificities of each language (e.g., *courses ''pour la maison''* and not *courses ''pour le ménage''*). Generally, the punctuation in English had to be adapted to the punctuation rules in French, adding question marks at the end of questions, for example. Certain words were added to remove ambiguity, such as the words ''*au moins*'' in question 7 relative to stairs, since the English version took into account only a single floor or the expression ''*par exemple*'' in question 8 in the English version describing pain experienced after a meal eaten sitting at a table. In addition, the notion of ''affected hip'' in question 10 was translated by ''*hanche malade ou opérée*'' to take into account the pre- and postoperative condition. Finally, the English expression ''housework'' giving the literal translation of ''*travail à la maison*'' was reformulated to ''*durant votre travail ou vos activités habituelles (taches ménagères comprises)?*'' to take these different activities into account. The last adaptation, particularly for questions 6 and 9, the typographic slash (/) found in the expressions ''No pain/> 30 minutes'' and ''Rarely/Never'' was replaced with the coordinating conjunction ''*ou*''. Other than very rare exceptions, none of the patients tested complained of true difficulties understanding or formulating responses. All of these measurements and tests carried out before administering the questionnaire validated the French translation of the OHS-12.

Testing the reliability of the responses to the OHS-12 questions

The reliability tests for the answers to the questionnaire, carried out on a complementary series, showed very good results with an intraclass correlation coefficient of 0.901. The test-retest procedure, based on the null hypothesis according to which the difference between the results of each of the questions after 3 days is null, demonstrated good reproducibility (Table 1). Therefore, none of the questions could be rejected in terms of the reproducibility of patient responses.

Comparing the questionnaire's scores with the PMA and HHS scores

The results for the series for this preoperative evaluation provided both overall and specific values for each of the OHS-12 questions and for each of the three parameters (pain, mobility, and function) of the HHS and PMA scores (Table 2, Fig. 1). A good distribution of the overall value of the scores was observed (Fig. 2): no ceiling or floor effect appeared (shown by the fact that all the values were not grouped at the top or the bottom of the histogram). The mean of the overall OHS-12 score for this series studied was

Table 2 Mean values of the three scores with ranges and standard deviations (S.D.).

|	OHS-12	HHS	PMA
Pain		12.97 [0—30], S.D. 7.10	1.97 [0—5], S.D. 1.37
Function/gait		24.03 [0—44], S.D. 9.16	3.55 [0—6], S.D. 1.21
Deformation		3.79 [0—4], S.D. 0.69	
Mobility		3.83 [1—5], S.D. 0.72	4.65 [0—6], S.D. 1.14
Total score	43.88 [22—60], S.D. 7.75	44.55 [0—83], S.D. 14.91	10.17 [2—17], S.D. 2.61
Total score (standardized on positive scale, 0—100)	26.85	44.55	56.50
Excellent	< 19	100—90	18
Good	19—26	89—80	17—15
Intermediate	27—33	79—70	14—13
Poor	> 33	< 70	< 13
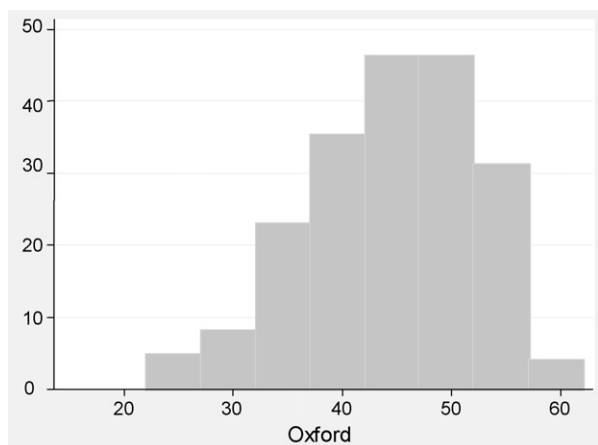
Figure 2 Distribution of the Oxford-12 scores of the patients waiting for a total hip replacement.

43.88 points, for a median at 45 points and a standard deviation of 7.75 points (range, 22—60 points). The measurement of the OHS-12 questionnaire's homogeneity demonstrated that each of the 12 questions only gave different responses as a function of the hip condition (shared or signal variance) and not because of other parasite factors (unshared or noise variance). The statistical index of homogeneity or the internal consistency of the questionnaire, measured by the Cronbach alpha coefficient, was excellent, with a value of 0.88 (an alpha value between 0 and 0.50 corresponds to an insufficient value, between 0.50 and 0.70 to a borderline or satisfactory value, and between 0.70 and 0.99 to a high value or good to excellent). The OHS-12 questionnaire therefore calls on parameters totally and coherently measuring the hip condition through the different questions proposed.
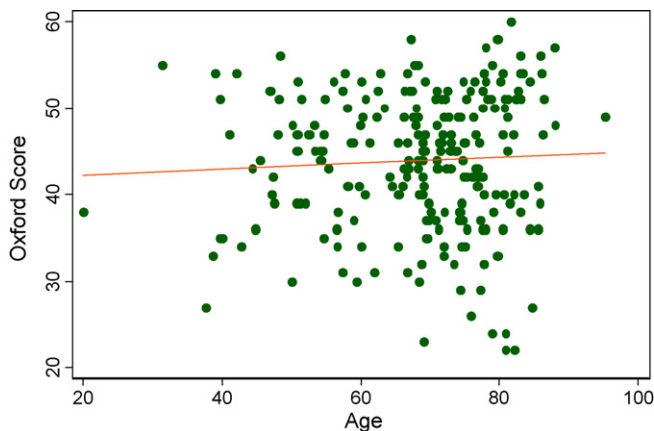
As for the different steps involved in validating the OHS-12 score, the content validity had already been demonstrated in the original article [1]. The criterion validity was first sought by comparing the OHS-12 score with the HHS. We observed a good Spearman correlation of 0.60 ($p < 0.001$) between the OHS-12 and the HHS. The linear relation between the two scores was established using the formula HHS = 90.5 − 1.02 OHS for which the constant (90.5) and the OHS coefficient (1.02) are statistically significant ($p < 0.001$; linear regression, $R^2 = 0.36$) (Fig. 3). On the other
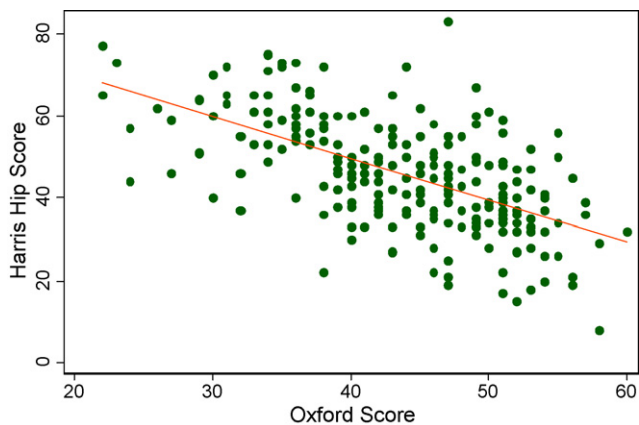
hand, we observed no direct association between the PMA score and the OHS-12 ($R^2 = 0.19$). This stems from the PMA score having a maximal possible value limited to 18 points, which makes it a score that is difficult to represent with continuous variables. For this reason, we attempted to group the patients' PMA scores into ''good and intermediate'' for values greater than 12 and ''poor'' for the values strictly below 12, which gave consistently significant differences ($p < 0.0001$). During another attempt where the OHS-12 was categorized according to class as proposed by Kalairajah et al. [8], we observed a correlation between the PMA and the OHS, but lower than that observed between the HHS and the OHS (Spearman Rho, −0.49; $p < 0.001$). However, examining the sub-scores in these two evaluations without considering mobility (removing questions 3, 4, and 7 of the OHS and the ''mobility'' sub-score out of 6 points on the PMA), an identical correlation was obtained (Spearman's Rho, −0.45; $p < 0.001$) between the OHS and the PMA for the association of the two remaining parameters, pain and function. Finally, for construction validity, the OHS-12 questionnaire measures the expected changes in several domains. Generally, the median of the distribution of the scores of patients with hip pain preoperatively (Fig. 2) showed that it moved toward the highest values, as could be expected in this category of patients with pain disturbing their daily activities.

Analyzing the other variables, patient age did not directly influence the total OHS-12 score, with a linear regression taking the form of a nearly horizontal line whatever the patient's OHS-12 score (Fig. 4). However, when the correlation of each of the OHS-12 questions was compared to the equivalent HHS and PMA scores, a significant correlation ($p < 0.03$) was found for age for the questions concerning walking, stairs, modes of transport, use of canes, and night-time pain (questions 5, 6, 7, and 12 on the OHS). Like the HHS ($p = 0.0042$) and the PMA ($p = 0.0002$), the OHS-12 showed significant differences between the two sexes ($p = 0.0047$), with a less severe disability in men before surgery. This difference cannot be explained by a simultaneous influence of patient age and sex; by separating the sexes, both the colinearity and the specific regressions were found to be nonsignificant also for age. No statistical explanation was found to explain the less severe disability in men at the time surgery was indicated.

Figure 3 Comparative expression of the Harris Hip Score in relation to the Oxford score following a linear regression.

Figure 4 Linear expression of the mean Oxford-12 score in relation to patient age.
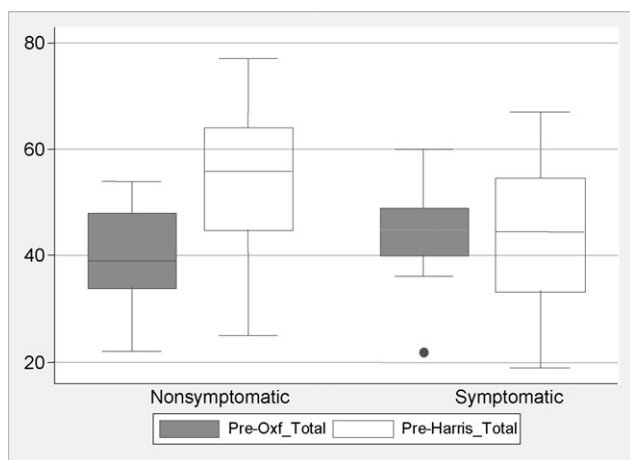
Figure 5 Results of Oxford-12 and Harris Hip scores in relation to whether patients experienced symptomatic spinal pain. The trend of the scores was inverted on the graph because the Oxford-12 score deteriorated with associated spinal pain, whereas the trend was inversed for the Harris score.

The body mass index (BMI) had no influence on the results of the OHS-12 ($p = 0.488$) or the Harris and the PMA results. Finally, the presence of symptomatic spinal pain significantly influenced the OHS-12 results ($p = 0.0019$) as well as the Harris ($p = 0.0006$) and PMA results ($p = 0.0017$); both pathologies could lead to the patient perceiving pain that could be described as ''coming from the hip'' (Fig. 5).

Discussion

Different evaluation methods

Assessment has without a doubt become the key word in our professional vocabulary for hip implants. But making a reasoned choice among the multitude of assessment tools remains to be proved. Scores, classifications, and survival curves are objective means to assess and compare clinical series using relatively standardized common tools [13,14]. Approximately 20 clinical scores have been described in the literature. New imaging and computer analysis techniques have since expanded even more the range of the objective, precise, and sophisticated means available, notably the Roentgen stereophotogrammetric analysis (RSA) [15], but the needs of daily practice preclude their use, with the exception of the encouraging results given by gait analysis [16].

The improvement in quality of life after THA is undeniable compared to the functional possibilities observed in age-matched patients who do not have hip pain [17]. Nevertheless, the traditional scores assumed to be objective are actually easily biased: observer bias (judge and participant), presence of the operator when the patient is questioned, and patients wishing to please the surgeon [18,19,20]. The current tendency is therefore to take into account the patient's subjective assessment not only of hip function (before and after implantation), but also of the repercussions of the implant on quality of life (emotional, social, functional, including sexual) using questionnaires.

Beginning in December 2001, the editors of the *Journal of Bone and Joint Surgery American* stressed that a self-assessment score must be included in the results of all future articles on THA results, recommending the Western Ontario McMaster University Osteoarthritis index (WOMAC) [21].

Simple but still useful, the visual analog scale (VAS) is applied particularly to pain assessment. The generic scores the patient's overall health (EuroQol 5D, Nottingham Health Profile [NHP], Medical Outcome Study 36-item Short Form Health Survey Questionnaire [SF-36] and its condensed form SF-12). The scores that are more specific to a particular pathology are applied to assessing the osteoarticular condition of the hip in particular. The most frequently used are the Arthritis Impact Measurement Scale (AIMS), the WOMAC, and the Oxford OHS-12. Of these, the first two are long and difficult to use in daily practice. In addition, their dissemination involves cultural, translation, comprehension, and time (compliance, duration) problems, which have already been demonstrated for the French versions of the NHP and the AIMS, successfully adapted nonetheless [22,23]. However, these validated questionnaires are advantageous in that they can be self-administered by the patients, without the assistance of a member of the healthcare team.

In a study comparing five of these quality scores self-evaluated by 114 patients who had received a hip implant (WOMAC, SF-36, EQ-5D, SF-12, and Oxford-12), the latter two, although the simplest, were recommended [24]. Consequently, under the aegis of the French Hip and Knee Society (SFHG), the authors chose to work with the 12-item Oxford questionnaire given its simplicity and the intense involvement of a surgical team in its design (D. Murray and his colleagues).

Validation of the translation into French

Using an assessment method such as a self-administered questionnaire in a language other than that of the original questionnaire assumes that the translation has been strictly validated from its inception. The validation protocol for a score in a foreign language is currently well codified. For this French-language validation of the OHS-12, we followed the international protocols [5] that had already been carried out in Dutch for the hip version of the OHS-12 [9] and in Italian and Swedish for the knee version, the 12-item Oxford Knee Score [10,11]. The translation was validated using the backward-forward process from French into English with correction of all differences or mistranslations after comparison with the original English questionnaire. The objective of the backward translation was to confirm that the formulation of each of the 12 questions faithfully reproduced the meaning of the questions in English, the whole meaning of the question, and nothing but the meaning of the question, excluding any parasitic bias, taking into account the cultural and semantic differences of each language. This posed no particular problems because of the cultural proximity between the English and French patients, which may not be the case for use in Asian, African, or Arab countries, in which the functional use of the lower limbs and lifestyle may be very different. This implies a double validation of the language and lifestyle, which may be significantly different for a similar language.

More specifically, lower back and leg pain, particularly frequent in this population, often interfere with hip pain and may be a source of confusion in the patient interpreting his or her own disability. Added to this are the possible intellectual deficiencies and the language problems involved in understanding the questions, which occasionally required the assistance of a third party from the patient's family. These two biases did not interfere in the present study because we investigated a series of patients whose clinical picture was relatively typical, with hip pain the major complaint. However, later studies comparing the long-term postoperative results between the OHS-12 score and the presumably objective scores should be based on a series of relatively young patients so as to minimize the risk of associated disability or semantic incomprehension, possibly adding a more selective questionnaire in terms of functional performance such as the Hip disability and Osteoarthritis Outcome Score (HOOS) [25].

The series and the results of the different scores

The series studied can be considered representative of a typical series of patients who are candidates for a total hip replacement, with no particular selection beforehand, notably in terms of activity, age or particularly the presence of associated disability factors according to the Charnley classification. The overall mean value of 44 points is very similar to the values observed in the study evaluating the Dutch translation of the OHS-12 [9]. As for the statistical analysis, the patient's age had an impact on only four of the 12 OHS-12 questions. However, one of the surprising findings of this comparative study was the demonstration of a significant difference between the sexes, with less severe disability in men at the preoperative consultation for all three scores: the OHS-12, the HHS, and the PMA. No statistical explanation could be attributed to this. A complementary study using a SF-36-type questionnaire taking into account certain psychological factors could shed light on this unresolved issue. Finally, the frequent parasitical interference of associated spinal problems should be emphasized: the presence of symptomatic spinal pain negatively and significantly influences the OHS-12 as well as the Harris and PMA results.

Correlations between the PMA, HHS, and OHS-12 questionnaires

This simultaneous evaluation of the OHS-12, the HHS, and the PMA score allowed us to compare the self-administered questionnaire and the presumably objective assessment by a healthcare professional. It was not possible, however, to demonstrate a direct relation between the overall OHS-12 and PMA scores, which had already been observed by the designers of the Charnley-modified PMA (modification of the calculation of mobility only) [1]. This could stem from the PMA being the only score that assigns more importance to mobility and function of the hip than to pain (6 points out of 18 for each criterion), whereas the other scores are much more directed toward pain and functional range of movement, and therefore are closer to patients' daily activities than the objective evaluation of the surgical results. This

may very well be why, among the extensively used clinical scores, the PMA is the most pessimistic, with, in descending order of optimism:

- the Hospital for Special Surgery score (HSSHS);
- the patient's assessment;
- the Mayo Clinic score;
- the Iowa score;
- the HHS;
- the PMA [26].

However, once the mobility score has been excluded from both the OHS-12 and the PMA, a good correlation was obtained for the association of the pain and function parameters alone. On the other hand, the present study showed that the translated OHS-12 remains closely correlated with the HHS, which has already been demonstrated by Kalairajah et al. [8], as well as the VAS, as reported by Nies and Fidler [27], the WOMAC, and the SF-36, confirmed by McGregory et al. [28,29] and Söderman et al. [30].

The possibility of obtaining a reliable and reproducible assessment by a mailed questionnaire allows patients to respond at home, avoids the costs of X-rays and consultations, and consequently provides an economical, traceable report of the results of different prosthesis implants. Telephone contact contributes to improving the reliability of the questionnaires [31]. Taking into account the assessment of the results by the patients themselves is also influenced by the preoperative psychological state, which can strongly interfere with the perception of the final result, more pessimistic in cases of chronic depression [32]. In Callaghan et al. study [26], however, patient assessment was observed to be more favorable than the evaluation given by the majority of the scores compared. Finally, other studies, all North American, have confirmed that a self-administered questionnaire could complete or even replace the traditional radiological and clinical follow-up visit with the surgeon or a professional examiner [33,34,35]. This type of extrapolation cannot be culturally validated in France today.

Conclusion

Subjective questionnaires that contribute a personal assessment of the result of arthroplasty perceived by the patient a posteriori can be easily applied on a large scale. This study makes a translated and validated version of a reliable and internationally recognized self-assessment score available to French orthopaedists. However, specific clinical investigations with radiographic analyses and survival curves, including certain sophisticated examinations such as RSA and gait analysis, remain indispensable. Only at the cost of assembling these different pieces can the service rendered by our arthroplasty procedures to our patients be objectively evaluated.

Acknowledgments

Appendix 1. Questionnaire Oxford Prothèse de Hanche

NOM : _____ **Prénom :** _____
Name :   **First name**
Date du jour : _ _ / _ _ / _ _ _ _ **Côté opéré :** ☐ **droit** ☐ **gauche**
Date of birth : day/month/year   operated side : right   left

☒ *Cochez une seule case pour chaque question*
only one answer is valid per question

1.

Durant les 4 dernières semaines… Comment décririez-vous la douleur que vous avez <u>habituellement</u> ressentie dans votre hanche?
For the last four weeks how would you describe the pain you have usually experienced at your hip ?
Aucune
No pain

Minime minimal Légère :light Modérée : moderateSévère : severe				
☐	☐	☐	☐	☐

2.

Durant les 4 dernières semaines…
For the last four weeks
Avez-vous eu des difficultés pour vous laver et vous sécher le corps
Did you experience difficulties washing and drying your entire body
Because of your hip condition
vous même (des pieds à la tête) <u>à cause de votre hanche</u> ?

Aucune difficulté	Difficultés minimes	Difficultés modérées	Difficultés majeures	Impossible à réaliser
no difficulty	**minimal diff.**	**Moderate diff**	**. serioux Dif.**	
impossibility				
☐	☐	☐	☐	☐

3.

Durant les 4 dernières semaines…
For the last four weeks
Avez-vous eu des difficultés <u>à cause de votre hanche</u> pour entrer ou
Did you experience difficulties , due to your hip condition, to get into a
cab or to use mass transportation ? (irrelevantly of the transport means
used)
sortir d'une voiture ou pour utiliser les transports en commun ?
(quelque soit le mode de transport utilisé)

Aucune difficulté	Difficultés minimes	Difficultés modérées	Difficultés majeures	Impossible à réaliser
no difficulty	**minimal diff.**	**Moderate diff**	**. serioux Dif.**	
impossibility				
☐	☐	☐	☐	☐

4.

Durant les 4 dernières semaines…
For the last four weeks

Avez-vous été capable de mettre seul(e) vos bas, collants ou chaussettes?
Were you able, with no assistance, to put yourself your hoses, your pantie-hose, your socks,?
Yes easily   with little difficulties with some dif. With a lot of dif. No impossible

Oui, facilement	Avec très peu de difficultés	Avec quelques difficultés	Avec beaucoup de difficultés	Non, impossible
☐	☐	☐	☐	☐

5. ***Durant les 4 dernières semaines…*** Avez-vous pu faire tout(e) seul(e) des courses pour la maison?
For the last four weeks were you able , with no assistance to do your household shoping

Yes easily   with little difficulties with some dif. With a lot of dif. No impossible

Oui, facilement	Avec très peu de difficultés	Avec quelques difficultés	Avec beaucoup de difficultés	Non, impossible
☐	☐	☐	☐	☐

6. ***Durant les 4 dernières semaines…***
For the last four weeks how long were you , (without interruption), able to walk before being prevented to continue due to the hip pain intensity (with or without a cane) ?
Combien de temps pouviez vous marcher (sans vous arrêter) avant que la douleur dans votre hanche ne devienne très importante? *(avec ou sans canne)*
No pain
For more than30 minutes –from 16 to 30 min. From 5 to 15 min. Around the house only- Impossibility to walk or severe pain

Pas de douleur ou plus de 30 minutes	De 16 à 30 minutes	De 5 à 15 minutes	Autour de la maison seulement	Marche Impossible ou douleur sévère
☐	☐	☐	☐	☐

⌇ *Cochez une seule case pour chaque question*

7. ***Durant les 4 dernières semaines…***
For the last four weeks were you able to climb stairs on one storey distance ?
Avez-vous pu monter un étage par les escaliers?
Yes easily   with little difficulties with some dif. With a lot of dif. No impossible

Oui, facilement	Avec très peu de difficultés	Avec quelques difficultés	Avec beaucoup de difficultés	Non, impossible
☐	☐	☐	☐	☐

8.

Durant les 4 dernières semaines…

For the last four weeks
After having been seated (for example during a meal) what level of pain did you experience , rising from your chair due to your hi condition

Après être resté assis (pour un repas par exemple), quel degré de douleur avez-vous ressenti en vous levant de la chaise <u>à cause de votre hanche</u>?

No pain at all ; slightly painful; moderately painful; seriously painful; unbearable

Pas douloureux du tout	Légèrement douloureux	Modérément douloureux	Très douloureux	Insupportable
☐	☐	☐	☐	☐

9.

Durant les 4 dernières semaines…

For the last four weeks did you experience any limping episode due to your hip condition ?

Avez-vous boité en marchant, <u>à cause de votre hanche</u>?

Rarely or never ; sometimes or just during the start; often and non exclusively during the start; most of the time, permanently .

Rarement ou jamais	Quelquefois, ou juste au début	Souvent, pas seulement au début	La plupart du temps	Tout le temps
☐	☐	☐	☐	☐

10.

Durant les 4 dernières semaines…

For the last four weeks, at the site of your damaged (or operated) hip , did you experience any sudden, sharp or excruciating pain (shooting, stabbing or spasm type pain…)

Avez-vous ressenti <u>au niveau de votre hanche malade (ou opérée)</u> une douleur soudaine, <u>vive et intense </u>(en coup de poignard, spasme, en vrille, etc …) ?

Never ; only once or twice ; few days ; most of the days ; every single day

Jamais	Seulement 1 ou 2 jours	Quelques jours	La plupart des jours	Chaque jour
☐	☐	☐	☐	☐

11.

Durant les 4 dernières semaines…

For the last four weeks did you experience did your hip pain create major disturbances un your work or daily activities (including housework)

La <u>douleur de votre hanche</u> vous a-t-elle gêné(e) dans votre travail ou vos activités habituelles (taches ménagères comprises)?

Pas du tout	Un peu	Modérément	Fortement	Tout le temps
☐	☐	☐	☐	☐

12.

Durant les 4 dernières semaines…

For the last four weeks did you experience any hip pain at night while in your bed ? Avez-vous souffert <u>de douleurs de votre hanche</u> au lit la nuit?

Never ; only once or twice ; few nights ; most of nights ; every single night.

Jamais	Seulement 1 ou 2 nuits	Quelques nuits	La plupart des nuits	Toutes les nuits
☐	☐	☐	☐	☐

Merci d'avoir pris le temps de répondre à ces questions

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