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Original Article

Development and validation of the French version of a tool assessing patient's expectations in lower limb osteoarthritis

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ABSTRACT

Objective: The Hospital for Special Surgery (HSS) Hip Replacement Expectations Survey and Knee Replacement Expectations Survey are validated tools developed to measure patients' preoperative expectations for hip and knee arthroplasty. These instruments have possible uses in both daily practice and research. Our objective was to assess the test-retest reliability and the construct validity of the French version of the surveys.

Methods: Patients scheduled for total hip ($n = 82$) or knee replacement ($n = 61$) aged 38–90 years were included. All completed the HSS Hip or Knee Replacement Expectations Survey and the Expectation WOMAC to determine concurrent validity.

The test-retest reliability was assessed using the intraclass coefficient correlation (ICC), the Bland and Altman Method and the coefficient of variation; the internal consistency was assessed by the Cronbach α coefficient. The construct validity was investigated using the Pearson correlation coefficient and floor and ceiling effects by percentage frequency of lowest or highest possible score achieved by respondents.

Results: 143 patients scheduled for hip or knee arthroplasty were included.

The reliability was excellent between the test and the retested total score, with an ICC of 0.902 (0.853–0.936) and CV of 4.06% for the French Hip Replacement Expectations Survey and 0.865 (0.786–0.917) and CV of 7.7% for the French Knee Replacement Expectations Survey, without bias.

The Cronbach α coefficient was 0.72 for hip Survey and 0.82 for knee Survey showing a good internal consistency.

Pearson correlation coefficients of 0.45 and 0.48 between Expectations WOMAC and HSS, respectively for hip Survey and knee Survey, were observed but with systematic bias.

The lowest possible score was not reported by any patient and only three patients (3.66%) scheduled for hip arthroplasty reported the highest possible score.

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Conclusions: The French version of the HSS Hip or Knee Replacement Expectations Survey is a reliable and valid questionnaire and compares favourably with the original English version. Therefore, this new version may help French-speaking clinicians to evaluate expectations before lower limb arthroplasty.

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1. Introduction

Patient's expectations of medical care are linked to their requests for elective and possibly costly treatments and to their assessments and satisfaction.^{1,2}

Fulfilment of expectations is an important outcome of joint arthroplasty. Patient expectation is an independent predictor of functional outcomes and is a large contributor to satisfaction after arthroplasty.^{3,4} Satisfaction is important for a variety of reasons: it has been linked to increased patient compliance, follow-up care and monitoring which is important in obtaining maximum prosthesis longevity. Satisfaction of patients also improves the patient-physician trust and interaction.^{5,6}

The goals of this study were to develop a French translation of the English-speaking Hospital for Special Surgery Hip Replacement Expectations Survey^{7–9} and the Hospital for Special Surgery Knee Replacement Expectations Survey^{7,10} into French according to international Guidelines as described by Beaton et al, and to study test-retest reliability and concurrent validity of the two French-language surveys.

2. Methods

2.1. Outcome assessments

2.1.1. The HSS Hip or Knee Replacement Expectations Survey
The HSS Hip/Knee Replacement Expectations Surveys are two validated and reliable questionnaires developed by Mancuso et al to determine expectations before hip or knee arthroplasty.

Originally, an 18-item (hip) and a 19-item (knee) surveys were developed by means of interviews several days before the surgery with respectively 180 and 161 patients. The expectations cited by patients relate to pain, walking, essential activities (e.g. function, sexual activity, work, sit and sleep ...), psychological benefits, non-essential activities (e.g. sports and leisure).^{8–10}

Patients were asked how much relief or improvement they expected for each items as a result of their hip/knee replacement.

The following response format was used:

- “back to normal or complete improvement”
- “a lot of improvement”
- “a moderate amount of improvement”

- “a little improvement”
- “I do not have this expectation, or this expectation does not apply to me”⁷

The total score ranged from 0 to 72 for hip and from 0 to 76 for knee, which was recoded into a 100-point scale, with a higher score representing higher expectations.

2.1.2. The expectation WOMAC

The Western Ontario and Mc Master Universities (WOMAC) is a composite index widely used to assess pain, stiffness and functional disability induced by knee/hip osteoarthritis (OA). The WOMAC is a valid and reliable scale for osteoarthritis of the lower limbs.¹¹

The Expectation WOMAC included exactly the same domains as the WOMAC but asked patients, with slight changes of the initial wording of the questions, to estimate how they expected to feel 6 months after the surgical procedure.¹²

Answers could be given on the same 5-point Likert scale as in the original WOMAC, ranging from “none” to “extreme”.

2.2. Translation

The developer of the original English questionnaires was informed of the objectives of the study and gave consent to a French Translation of the Hip and Knee Expectations Surveys (Carol Mancuso, MD, Hospital for Special Surgery, personal communication 2010).

We used the cross-cultural adaptation process being recommended by the AAOS (American Academy of Orthopaedic Surgeons) Evidence Based Medical Committee and Beaton for translating and adapting in French the Hip Replacement Expectations Survey and Knee Replacement Expectations Survey.¹³

The methodology suggested 5 stages:

- 1: translation (English to French),
- 2: synthesis,
- 3: back translation (French to English),
- 4: experts committee review,
- 5: pre-testing and testing,

Two bilingual translators (one informed about the concept of the questionnaire and one uninformed) who have the target language (French) as their mother tongue independently translated the questionnaire into French (stage 1).

At stage 2, a third person produced a synthesis of the two translations, playing a mediator-like role.

Back translation was done using this synthesis, by two native English speakers, fluent in French but without medical background.

The composition of the experts committee included the 4 translators, the translation synthesis recorder, a methodologist, a clinician, a language expert and the coordinator for the pre-test.

The committee consolidated all the versions and components of the questionnaire to develop the pre-final version of the questionnaire.

Then, we assessed:

- If the instructions and responses categories were clear enough
- If the items were understandable
- And asked for suggestions in 20 patients expecting hip or knee arthroplasty in a teaching (State University) Hospital in Liege to prepare the final version. For final versions see appendix 1 and 2.

2.3. Patients

Patients recruited from the Orthopaedic Surgery Department of three separate hospitals (i.e. from the public sector, from the private sector and one teaching hospital) around Liege (Belgium) were enrolled between July 2012 and June 2013.

The inclusion criteria were patients scheduled for hip or knee arthroplasty with no limit of age.

We called up 20 days before surgery to explain the survey objectives and to propose to participate during a telephone interview. The patients were also asked about their age, gender, height and weight (BMI), educational level and living situation.

The study was approved by the local medical ethical committee (EC/IRB).

2.4. Psychometric scale properties

2.4.1. Test-retest reliability

Test-retest reliability was analysed by asking the patients to answer the questionnaire twice at a 10-day interval before the surgery: at first, 20 days before surgery and then 10 days later during a telephone interview. This period is considered short enough to prevent changes in expectations, and long enough to prevent memorizing.

The intra-class coefficient correlation (ICC) (two-way mixed effects model, absolute agreement) was used to test the reliability between the baseline and retest scores and to evaluate item-by-item agreement.

Values between 0.60 and 0.80 indicated good reliability whereas values higher than 0.80 indicated excellent reliability.¹⁴ Ninety-five percent confidence intervals (CI) were calculated for ICC values.

Additionally to determine agreement, Bland and Altman plots were constructed; in these plots the mean difference (d) between the first and second measurements with corresponding 95% CI and the 95% Limits of Agreement (LOA) were presented ($d \pm tn-1 \times SDD$).¹⁵ Moreover, Bland and Altman analyses were performed to determine whether any bias occurred.

These two methods give complementary information as shown by Atkinson et al, and I-Kuei Lin et al.^{16,17}

Finally, we assessed the absolute value of the coefficient of variation (CV) – sometimes known as relative standard deviation (RSD) which is expressed as a percentage.

2.4.2. Internal consistency

Internal consistency is the estimation of item homogeneity. Items of the scale should tap various aspects of a unique trait, not different attributes. The internal coherence was examined using Cronbach α . A value of more than 0.70 is being considered acceptable.

2.4.3. Construct validity

Construct validity represents the extent to which the results of the questionnaire are related to the theoretical concept to be measured. Construct validity includes the degree of correlation between an instrument and other measure(s) that assess similar concepts such as the Expectation WOMAC (convergent validity) and the divergence from measures that are dissimilar (discriminant validity). We don't have evaluate the discriminant validity.

There is no consensus in the literature on the criterion to determine when two measures should be considered correlated. However Streiner¹⁸ considered that a correlation between 0.4 and 0.6 is evidence that the same construct is being embraced.

Additionally to determine agreement, Bland and Altman plots were made; in these plots the mean difference (d) between the first and second measurements with corresponding 95% CI and the 95% Limits of Agreement (LOA) were presented ($d \pm tn-1 \times SDD$).¹⁵

Moreover, Bland and Altman analyses were performed to determine whether bias occurred.

These two methods give complementary information as shown by Atkinson et al, and I-Kuei Lin et al.^{16,17}

2.4.4. Floor and ceiling effects

The floor and ceiling effects were analysed by calculating the percentage frequency of lowest or highest possible score achieved by respondents. Floor and ceiling effects higher than 15% are considered to be significant.

2.5. Statistical analysis

All statistical analyses have been made using Statistica 10 and the SPSS 16.0 for Windows.

3. Results

3.1. Pretest

We assessed the two surveys with 20 patients (expecting hip or knee arthroplasty) to determine if the instructions and responses categories were clear enough, if the items were understandable and asked for suggestions.

Table 1 summarizes clinical characteristics and results of the pretest.

3.2. Subjects

The study included 143 patients scheduled for hip (82) or knee (61) arthroplasty.

We have a response rate of 100% with no refusal but 42 patients were not reachable.

The “Hip” group comprised 51 women (62.2%) and 31 men (37.8%) with a mean age of 64.7 years (range: 39–90).

The “Knee” group comprised 36 women (59%) and 25 men (41%) with an average age of 68.5 years (range: 48–87).

Table 2 summarizes clinical characteristics and outcomes scores at the first and second assessments of the French Hip/knee Replacement Expectations Survey and the Expectations WOMAC.

3.3. Test-retest reliability

The whole study population, 142 patients (82 for hip and 61 for knee questionnaire) were asked to fill in again the HSS Hip or Knee Replacement Expectations Survey 10 days after the first one. The first and second interviews were done by the same interviewer.

3.4. French Hip Replacement Expectations Survey

The first interview was conducted at an average of 17.9 ± 2.88 days (range, 8–22 days) prior to surgery and the second

interview, at an average of 9.06 ± 2.39 days (range, 5–16 days) after the first interview.

The intraclass correlation coefficient (ICC) between the Hip Replacement Expectations Score of the first and second assessment was 0.902 (95% CI 0.853–0.936).

The ICCs of the individual items ranged from 0.394 (item 3) to 0.897 (items 11 and 12).

Item-by-item agreements and total score agreement are presented in Table 3.

To assess agreement, the Bland and Altman plot shows that zero lies within the 95% CI of the mean difference (d) between the first and second measurement of the French Hip Replacement Expectations Survey, indicating no trend/bias (Fig. 1).

The 95% LOA are -0.34 ± 11.94 .

The absolute value of the coefficient of variation was 5.8%.

3.4.1. French Knee Replacement Expectations Survey

The first interview was conducted at an average of 18.64 ± 2.19 days (range, 13–22 days) before the surgery and the second interview, at an average of 9.92 ± 2.23 days (range, 4–18 days) after the first interview.

Table 1 – Patient characteristics and mean total score for pretest study.

Operation performed in University Medical Centre	Hip	Knee
N	10	10
Sex	7 ♀ 3 ♂	3 ♀ 7 ♂
Age in years (mean, SD)	66.6 ± 14.47	61.4 ± 9.49
BMI in kg/m ² (mean, SD)	26.46 ± 4.68	30.33 ± 4.46
Living situation		
Living alone (N, %)	6 (60)	3 (30)
Living with partner and/or children (N, %)	4 (40)	7 (70)
Highest educational level		
Primary school (N, %)	2 ¹⁹	1 ¹⁰
Secondary school (N, %)	5 (50)	5 (50)
Higher education (N, %)	3 (30)	4 (40)
Expectation score : 0–100 (mean, SD)	73.61 ± 16.63	75.53 ± 13.98
Remarks	None	One person didn't understand item 5 and one person suggested to adapt item 6
Verdict:	No modification to the survey	Modification of item 6 in that way : « Pouvoir étendre complètement la jambe »

Note: BMI: Body Mass Index, Expectation score: score from assessment of the French Hip/knee Replacement Expectations Survey. Higher score indicates expecting more improvement for more items.

Table 2 – Patient characteristics and mean total score on questionnaires for the reliability and validity study.

	Hip	Knee
N	82	61
Sex	51 ♀ 31 ♂	36 ♀ 25 ♂
Age in years (mean, SD)	64.74 ± 11.31	68.54 ± 9.22
BMI in kg/m ² (mean, SD)	26.74 ± 5.12	28.56 ± 4.73
Living situation		
Living alone (N, %)	21 (25.61)	17 (27.87)
Living with partner and/or children (N, %)	61 (74.39)	44 (72.13)
Highest educational level		
Primary school (N, %)	7 (8.54)	5 (8.2)
Secondary school (N, %)	40 (48.78)	29 (47.54)
Higher education (N, %)	35 (42.68)	27 (44.26)
Operation performed in:		
University Medical Centre (N, %)	21 (25.61)	20 (32.79)
General Hospital (public) (N, %)	23 (28.05)	20 (32.79)
General Hospital (private) (N, %)	38 (46.34)	21 (34.42)
Expectation Score	72.26 ± 12.79	68.68 ± 13.98
T1: 0–100 (mean, SD)		
Expectation Score	72.59 ± 14.09	69.50 ± 15.04
T2: 0–100 (mean, SD)		
Expectation WOMAC Score: 0–96 (mean, SD)	10.15 ± 10.34	12.97 ± 11.04
Adapted Expectation WOMAC Score: 0–100 (mean, SD)	89.43 ± 10.77	86.49 ± 11.50

Note: BMI: Body Mass Index, Expectation score T1: score from first assessment of the French Hip/knee Replacement Expectations Survey. Higher score indicates expecting more improvement for more items. Expectation score T2: score from second assessment of the French Hip/knee Replacement Expectations Survey. Higher score indicates expecting more improvement for more items. Expectation WOMAC Score ranging like WOMAC from 0 (best possible score for pain, stiffness and physical function) – 96 (worst possible score for pain, stiffness and physical function). Adapted Expectation WOMAC Score ranging like the Expectation Score from 0 to 100: higher score indicates expecting more improvement for more items.

Table 3 – Intraclass correlation coefficients between the first and second assessments of the French Hip Replacement Expectations Survey, for the total score and the individual items separately.

Intraclass correlation	95% Confidence interval		
	0.902	0.853	0.936
Hip Replacement Expectations Score			
Q1. Relief of daytime pain	0.853	0.781	0.902
Q2. Relief of pain that interferes with sleep	0.839	0.762	0.893
Q3. Improve ability to walk	0.394	0.196	0.562
Q4. Improve ability to stand	0.682	0.547	0.782
Q5. Get rid of limp	0.725	0.603	0.813
Q6. Remove need for a cane or other assistive device	0.857	0.787	0.905
Q7. Improve ability to climb stairs	0.842	0.765	0.895
Q8. Improve ability to get in or out of a bed, chair or car	0.68	0.544	0.781
Q9. Improve ability to perform daily activities around the home	0.88	0.819	0.921
Q10. Improve ability to perform daily activities away from the home	0.607	0.45	0.727
Q11. Eliminate need for medications	0.897	0.844	0.932
Q12. Be employed for monetary reimbursement	0.897	0.845	0.932
Q13. Improve sexual activity	0.877	0.816	0.919
Q14. Improve ability to exercise or participate in sports	0.77	0.665	0.846
Q15. Improve ability to participate in social activities or recreation	0.761	0.649	0.84
Q16. Improve ability to put on shoes and socks	0.758	0.648	0.837
Q17. Improve ability to cut toenails	0.822	0.737	0.881
Q18. Improve psychological well-being	0.772	0.667	0.846
Min	0.394		
Max	0.897

Fig. 1 – Bland and Altman plot reliability French Hip Replacement Expectations survey. Expectations score T1: score from first assessment of the French Hip Replacement Expectations Survey. Expectations Score T2: score from second assessment of the French Hip Replacement Expectations Survey. CI: confidence of interval. d: mean difference between first and second assessment of the survey. LOA: limits of agreement.

The intraclass correlation coefficient between the Knee Replacement Expectations Score of the first and second assessment was 0.865 (95% CI 0.786–0.917).

The ICCs of the individual items ranged from 0.439 (item 14) to 0.989 (item 12).

Item-by-item agreements and total score agreement are presented in Table 4.

Fig. 2 shows the Bland and Altman plot to determine agreement. Zero lies within the 95% CI of the mean difference (d) between the first and second measurement of the French Knee Replacement Expectations Survey, indicating no systematic trend/bias (Fig. 2).

The 95% LOA are -0.82 ± 15.09 .

The absolute value of the coefficient of variation was 7.71%.

3.4.2. Internal consistency

The Cronbach α coefficient as measure of internal consistency was:

- 0.72 for the French Hip Replacement Expectations Survey
- 0.82 for the French Knee Replacement Expectations Survey showing a good internal consistency

Table 4 – Intraclass correlation coefficients between the first and second assessments of the French Knee Replacement Expectations Survey, for the total score and the individual items separately.

Intraclass correlation	95% Confidence interval		
	0.865	0.786	0.917
Knee Replacement Expectations Score			
Q1. Relief pain	0.694	0.538	0.804
Q2. Improve ability to walk short distance	0.787	0.397	0.73
Q3. Improve ability to walk medium distance	0.798	0.685	0.874
Q4. Improve ability to walk long distance	0.638	0.461	0.766
Q5. Remove the need for a cane, crutch or walker	0.704	0.551	0.812
Q6. Make knee or leg straight	0.639	0.463	0.766
Q7. Improve ability to go up stairs	0.753	0.619	0.845
Q8. Improve ability to go down stairs	0.723	0.579	0.824
Q9. Improve ability to kneel	0.698	0.543	0.807
Q10. Improve ability to squat	0.606	0.419	0.743
Q11. Improve ability to use public transportation, drive	0.644	0.47	0.77
Q12. Be employed for monetary reimbursement	0.989	0.981	0.993
Q13. Improve ability to participate in recreation	0.661	0.492	0.782
Q14. Improve ability to perform daily activities	0.439	0.213	0.621
Q15. Improve ability to exercise or participate in sports	0.74	0.601	0.835
Q16. Improve ability to change position	0.794	0.679	0.871
Q17. Improve ability to interact with others	0.686	0.526	0.799
Q18. Improve sexual activity	0.758	0.627	0.847
Q19. Improve psychological well-being	0.753	0.619	0.844
Min	0.439		
Max	0.989		

3.5. Construct validity

3.5.1. French Hip Replacement Expectations Survey

For the convergent validity, the Pearson's correlation coefficient between the Hip Replacement Expectation Score (first evaluation) and the Expectation WOMAC total score was 0.47.

The Bland and Altman plot shows that the LOA are -17.175 ± 24.58 (Fig. 3).

The Hip Replacement Expectations Score was 17.175 points lower than the mean expectations WOMAC total score and zero was not in the 95% CI of d indicating systematic trend/bias.

3.5.2. French Knee Replacement Expectations Survey

To determine convergent validity, the Pearson's correlation coefficient between the Knee Replacement Expectations Score (first evaluation) and the Expectation WOMAC total score was determined, which was 0.48.

The Bland and Altman plot shows that the LOA are -17.81 ± 26.36 (Fig. 4).

As the Knee Replacement Expectations Score was 17.81 points lower than the mean expectations WOMAC total score and significantly different from zero, it's indicated systematic trend/bias.

3.5.3. Floor and Ceiling effects

The lowest possible HSS score was not recorded in any patient. The highest possible score was only observed in 3 patients (3.66%), scheduled for hip arthroplasty.

4. Discussion

The aims of the present study were to assess the reliability and validity of the French version of two validated multidimensional expectations questionnaires: the English-language Hospital for Special Surgery Hip Replacement Expectations

Fig. 2 – Bland and Altman plot reliability French Knee Replacement Expectations Survey. Expectations Score T1: score from first assessment of the French Knee Replacement Expectations Survey. **Expectations Score T2:** score from second assessment of the French Knee Replacement Expectations Survey. **CI:** confidence of interval. **d:** mean difference between first and second assessment of the survey. **LOA:** limits of agreement.

Fig. 3 – Bland and Altman plot reliability French Hip Replacement Expectations Survey. Expectations Score T1: score from first assessment of the French Hip Replacement Expectations Survey. **Expectations Score WOMAC (adapted):** ranging like the Expectation Score from 0 to 100: higher score indicates expecting more improvement for more items. **CI:** confidence of interval. **d:** mean difference between first and second assessment of the survey. **LOA:** limits of agreement.

Survey and the Hospital for Special Surgery Knee Replacement Expectations Survey.^{7–10}

First of all, we used the cross-cultural adaptation process recommended by the AAOS (American Academy of Orthopaedic Surgeons) Evidence Based Medical Committee and Beaton¹³ for translating and adapting in French the Hip Replacement Expectations Survey and Knee Replacement Expectations Survey.

Fig. 4 – Bland and Altman plot concurrent validity French Knee Replacement Expectations Survey. Expectations Score T1: score from first assessment of the French Knee Replacement Expectations Survey. **Expectations Score WOMAC (adapted):** ranging like the Expectation Score from 0 to 100: higher score indicates expecting more improvement for more items. **CI:** confidence of interval. **d:** mean difference between first and second assessment of the survey. **LOA:** limits of agreement.

In addition, the aim of this study was to assess the retest reliability and the validity of the French version of the English-language Hospital for Special Surgery Hip Replacement Expectations Survey and the Hospital for Special Surgery Knee Replacement Expectations Survey.

Our purpose, by validating the psychometric properties of this tool, was to provide a new tool for physicians and researchers of French-speaking countries, dealing with the management of patients expecting hip or knee arthroplasty as no questionnaires were available in French to determine preoperative expectations.

This tool was already used once adapted in French by back translation to compare patient and surgeon expectations but without complying with the full cross-cultural adaptation process proposed by Beaton et al.^{13,20}

According to the present study, the test-retest reliability of the French translation of the Hospital for Special Surgery Hip Replacement Expectations Survey and the Hospital for Special Surgery Knee Replacement Expectations Survey is excellent both for the measure of the hip whole score ($ICC > 0.900$) and for the measure of the knee whole score ($ICC > 0.850$). These values are higher than the threshold of 0.800 suggested by Nunnally and Bernstein.¹⁴

The item with the lowest ICC in the French Hip Replacement Expectations Survey was the expectation to improve ability to walk.

When looking at the individual items of the French Knee Replacement Expectations Survey, the lowest ICC's was found for the improvement of ability to perform daily activities. By contrast, these items scored high in the other survey (Knee or Hip).

It's difficult to explain why patients rate differently their expectations at the first and second interviews. The patients may find it difficult to estimate their expectations twice with the same degree of certainty. Overall, all ICC's were moderate to high (between 0.39 and 0.99) and the differences between the items are small, indicating good test-retest reliability of both surveys.

Moreover, the Bland and Altman analyses indicated no bias between the first and second measurements.

Compared to the cross-cultural adaptation in Dutch,¹⁹ these results are similar. We do not have information about the reliability of the original version.

The internal consistency of the French version of the English-language HSS Hip or Knee Replacement Expectations Survey is good (Cronbach α coefficient of 0.72 for hip survey and 0.82 for knee survey) and also in line with the properties of the original tool (0.77 for hip and 0.79 for knee). The Cronbach's alpha was slightly below the one reported for the Dutch adaptation (Hip 0.86; Knee 0.91).

We observed some difficulties to establish the construct validity because of the lack of tools assessing the expectations of the patients. So, we used the closest available tool: the Expectation WOMAC but we did it with caution. Whereas the French WOMAC is reliable and valid, the psychometric properties of Expectation WOMAC remain unknown.

The Pearson's correlations were calculated between the French Expectations Surveys and the Expectation WOMAC. The correlations were moderate (0.47 for hip and 0.48 for knee) and included between 0.4 and 0.6, which confirms that the same construct is being embraced.¹⁸

Unfortunately, we observed a systematic bias in the Bland Altman analysis and the Expectations Score was approximately 17 points lower than the mean expectations WOMAC total score. However, the same trend was observed in the Dutch validation. This can be explained because the response's categories and codification are different. Indeed, in the Expectations Surveys, one of the possible answers is "I do not have this expectation, or this expectation does not apply to me". A score of 0 is attributed to this answer while a score of 4 is granted for the answer "Back to normal or complete improvement".

One of the strengths of the current study is that participants originated from 3 different hospitals (i.e. university, public and private). In the Orthopaedic Departments from the public and private hospitals, the patients were to be operated by one single surgeon.

We have a response rate of 100% with no refusal but 42 patients were not reachable. We used all the questionnaires in the analyses since there were no missing values.

The major limitation of this study is the lack of validated translations of the HSS Expectations Score preventing to compare our results with those from other groups. The HSS Expectations Scores are two recent questionnaires which were only fully validated in English (original version) and Dutch.

Moreover, there is no clear recommendation for the assessment of reliability and validity of a translated questionnaire as it is the case for the translation process in itself, where clear recommendations exist.²¹ Because all these tools are not validated in every language, authors wishing to validate a translated questionnaire often used their own reference tool.

However, the statistics used in the present study to assess reliability and validity are the most widely used in the literature. Furthermore, studying the external validity of such questionnaire remains difficult considering the absence of a "gold standard".

The study also has another limitation, i.e. during the phone interview, the patients are more likely to give socially desirable answers.

In conclusion, the French version of the English-language Hospital for Special Surgery Hip Replacement Expectations Survey and the Hospital for Special Surgery Knee Replacement Expectations Survey are reliable and valid and can therefore be recommended for clinical and research purposes.

These tools seem to be of potential interest for the management of patients.

The next step will be to assess the preoperative expectations of French-speaking people to improve discussions between patients and physicians and detect unrealistic expectations.⁹ These expectations could be modified by a preoperative educational intervention and could contribute to increasing the satisfaction rate^{7,22}. Moreover, a patient pre-operative program could be effective in reducing hospital length of stay.²³ We could also access the fulfilment of patient's expectations.

Authors' contributions

AN, JPD, FF, PG, CG, MM, JYR were involved in the design and conduct of the study.

AN drafted the manuscript which was reviewed by the others.

Statistical analyses were performed by AN.

All authors participated into the interpretation of the data and approved the final version of the manuscript.

Conflicts of interest

All authors have none to declare.

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Appendix 1. Final version of the French translation of the hip expectations survey.

ATTENTES DU PATIENT APRÈS MISE EN PLACE D'UNE PROTHÈSE DE HANCHE					
Quel degré d'amélioration attendez-vous du placement de votre prothèse de hanche pour les points suivants ?					
<i>Pour chaque question, veuillez entourer le chiffre qui décrit au mieux votre situation.</i>					
	Retour à la normale ou amélioration complète.	Pas de retour à la normale mais ...			Vous n'avez pas cette attente <i>ou</i> celle-ci ne s'applique pas à votre situation.
		importante	amélioration modérée	légère	
Soulager votre douleur pendant la journée	1	2	3	4	5
Soulager la douleur qui perturbe votre sommeil	1	2	3	4	5
Améliorer votre capacité à marcher	1	2	3	4	5
Améliorer votre capacité à vous lever et rester debout	1	2	3	4	5
Arrêter de boiter.	1	2	3	4	5
Ne plus avoir besoin d'une canne ou d'un autre moyen d'aide à la marche	1	2	3	4	5
Améliorer votre capacité à monter ou descendre les escaliers	1	2	3	4	5
Améliorer votre capacité à entrer <i>ou</i> sortir du lit ou de la voiture; à vous asseoir dans <i>ou</i> à vous lever d'une chaise ou d'un fauteuil	1	2	3	4	5
Améliorer votre capacité à effectuer des activités au domicile (par exemple, les tâches ménagères, le jardinage, ...)	1	2	3	4	5
Améliorer votre capacité à effectuer des activités en dehors du domicile (par exemple, faire les courses,...)	1	2	3	4	5
Ne plus avoir besoin de prendre des médicaments	1	2	3	4	5
Exercer une activité professionnelle	1	2	3	4	5
Améliorer votre activité sexuelle	1	2	3	4	5
Améliorer votre capacité à pratiquer une activité physique ou sportive	1	2	3	4	5
Améliorer votre capacité à participer à des activités sociales ou récréatives.	1	2	3	4	5
Améliorer votre capacité à enfiler vos bas, vos chaussettes et vos chaussures	1	2	3	4	5
Améliorer votre capacité à vous couper les ongles des pieds	1	2	3	4	5
Améliorer votre bien-être psychologique	1	2	3	4	5

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HOSPITAL FOR SPECIAL SURGERY
Attentes du patient après mise en place d'une Prothèse de Hanche ©

Calcul du Score

Merci de votre intérêt pour l'Etude sur les Attentes du Patient après Mise en Place d'une Prothèse de Hanche (de l'« Hospital for Special Surgery » ©).

Le calcul du score pour l'étude est le suivant :

1. Reprenez les réponses, en sens inverse, de la sorte :

4 = Retour à la normale ou amélioration complète

3 = amélioration significative

2 = amélioration modérée

1 = légère amélioration

0 = Cet item ne correspond pas à mes attentes

2. Additionnez toutes les réponses.

Le score brut des réponses additionnées se situe entre 0 et 72.

3. Transformez ce score pour qu'il soit compris entre 0 et 100.

Score transformé = (score brut / 72) x 100.

4. Reportez le score obtenu.

Un score plus élevé indique une attente d'une amélioration plus importante pour un plus grand nombre d'items.

Merci de citer ce qui suit lorsque vous vous référez à l'Etude sur les Attentes du Patient après Mise en Place d'une Prothèse de Hanche (de l'« Hospital for Special Surgery » ©) :

Neuprez et al. 2014

Mancuso CA, Salvati EA, Johanson NA, Peterson MGE, Charlson ME. Patients' expectations and satisfaction with total hip arthroplasty. J Arthroplasty 1997;12:387-396.

Mancuso CA, Sculco TP, Salvati EA. Patients with poor preoperative functional status have high expectations of total hip arthroplasty. J Arthroplasty 2003;18:872-878.

Mancuso CA, Graziano S, Briskie LM, Peterson MGE, Pellicci PM, Salvati EA, Sculco TP. Randomized trials to modify patients' expectations of hip and knee arthroplasty. Clin Ortho Relat Res 2008;466:424-431.

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Appendix 2. Final version of the French translation of the knee expectations survey.

ATTENTES DU PATIENT APRÈS MISE EN PLACE D'UNE PROTHÈSE DE GENOU.					
Quel degré d'amélioration attendez-vous du placement de votre prothèse de genou pour les points suivants ? <i>Pour chaque question, veuillez entourer le chiffre qui décrit au mieux votre situation.</i>					
	Retour à la normale ou amélioration complète.	Pas de retour à la normale mais ...			Vous n'avez pas cette attente <u>ou</u> celle-ci ne s'applique pas à votre situation.
		importante	amélioration modérée	légère	
Soulager votre douleur.	1	2	3	4	5
Améliorer votre capacité à marcher	1	2	3	4	5
• sur de courtes distances (chez vous ou jusqu'au coin de la rue).					
• sur une distance moyenne (faire une petite promenade, jusqu'à 1 km).					
• sur de longues distances (plus d'1 km).	1	2	3	4	5
Ne plus avoir besoin d'une canne, d'une béquille ou d'un gadot.	1	2	3	4	5
Pouvoir étendre complètement la jambe.	1	2	3	4	5
Améliorer votre capacité à monter les escaliers.	1	2	3	4	5
Améliorer votre capacité à descendre les escaliers.	1	2	3	4	5
Améliorer votre capacité à vous mettre à genoux.	1	2	3	4	5
Améliorer votre capacité à vous accroupir.	1	2	3	4	5
Améliorer votre capacité à conduire, utiliser les transports en commun.	1	2	3	4	5
Exercer une activité professionnelle.	1	2	3	4	5
Améliorer votre capacité à participer à des activités de détente (par exemple, danser, voyager,...).	1	2	3	4	5
Améliorer votre capacité à accomplir les activités de la vie quotidienne (par exemple, les tâches ménagères habituelles).	1	2	3	4	5
Améliorer votre capacité à pratiquer une activité physique ou sportive.	1	2	3	4	5
Améliorer votre capacité à changer de position (par exemple, passer de la position assise à la position debout ou de la position debout à la position assise).	1	2	3	4	5
Améliorer votre capacité à interagir avec d'autres personnes (par exemple, prendre soin de quelqu'un, jouer avec les enfants).	1	2	3	4	5
Améliorer votre activité sexuelle.	1	2	3	4	5
Améliorer votre bien-être psychologique.	1	2	3	4	5

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Attentes du patient après mise en place d'une Prothèse de Genou. ©

Calcul du Score

Merci de votre intérêt pour l'Etude sur les Attentes du Patient après Mise en Place d'une Prothèse de Genou (de l'« Hospital for Special Surgery » ©).

Le calcul du score pour l'étude est le suivant :

1. Reprenez les réponses, en sens inverse, de la sorte :

- 4 = Retour à la normale ou amélioration complète
- 3 = amélioration significative
- 2 = amélioration modérée
- 1 = légère amélioration
- 0 = Cet item ne correspond pas à mes attentes

2. Additionnez toutes les réponses.

Le score brut des réponses additionnées se situe entre 0 et 76.

3. Transformez ce score pour qu'il soit compris entre 0 et 100.

Score transformé = (score brut / 76) x 100.

4. Reportez le score obtenu.

Un score plus élevé indique une attente d'une amélioration plus importante pour un plus grand nombre d'items.

Merci de citer ce qui suit lorsque vous vous référez à l'Etude sur les Attentes du Patient après Mise en Place d'une Prothèse de Genou (de l'« Hospital for Special Surgery » ©) :

Neuprez et al. 2014

Mancuso CA, Sculco TP, Wickiewicz TL, Jones EC, Robbins L, Warren RF, Williams-Russo P. Patients' expectations of knee surgery. *J Bone Joint Surg* 2001;83-A:1005-1012.

Mancuso CA, Graziano S, Briskie LM, Peterson MGE, Pellicci PM, Salvati EA, Sculco TP. Randomized trials to modify patients' expectations of hip and knee arthroplasty. *Clin Ortho Relat Res* 2008;466:424-431.

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