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Published in:
Journal of Shoulder and Elbow Surgery

DOI:
10.1016/j.jse.2017.03.030

Publication date:
2017

J Shoulder Elbow Surg (2017) 26, 1701–1707

ELSEVIER

Journal of Shoulder and Elbow Surgery

www.elsevier.com/locate/ymse

The development of the Patient Expectations of Shoulder Surgery survey

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Background: Patient satisfaction after a surgical procedure is dependent on meeting preoperative expectations. There is currently no patient expectations survey available for patients undergoing shoulder surgery that is validated, reliable, and easy to use in daily practice. The aim of this study was to develop a Patient Expectations of Shoulder Surgery (PESS) survey.

Methods: In 315 patients, answers to an open-ended question about patient expectations were collected before shoulder surgery to develop the PESS survey. Patients' expectations of the PESS survey were associated with clinical outcome (change of Disabilities of the Arm, Shoulder, and Hand score). Content validity was assessed by a panel of 10 patients scheduled for shoulder surgery, and test-retest reliability was evaluated.

Results: Six items were included in the PESS survey: pain relief, improved range of motion, improved ability to perform daily activities, improved ability to perform work, improved ability to participate in recreational activities and sports, and stop shoulder from dislocating. Three of the 6 expectations were significantly associated with clinical outcome after shoulder surgery. Test-retest reliability was high with an intraclass correlation coefficient of 0.52-0.92.

Discussion: The PESS survey is a valid and reliable survey that can be used in future clinical research and in daily orthopedic practice. We believe that the preoperative evaluation of patient expectations should be a standard procedure before shoulder surgery.

Level of evidence: Basic Science Study; Development and Validation of Outcome Instrument

Keywords: Patient expectations; shoulder surgery; survey; clinical outcome; validity; daily orthopedic practice

Clinical outcomes and patient satisfaction after orthopedic surgical treatment are dependent on the patient's expectations before surgery.[4,7,10,13,21,23] In the orthopedic literature, patient expectations are frequently studied before total knee and total hip replacement.[8,24,25] In shoulder surgery, 3 studies found a positive association between preoperative expectations before rotator cuff surgery and self-assessed clinical

The Regional Medical Ethical Committee of Isala Hospital, Zwolle, The Netherlands, approved this study: No. 14.11151.

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1058-2746/$ - see front matter
http://dx.doi.org/10.1016/j.jse.2017.03.030

outcome.[10,21,23] These studies used the Musculoskeletal Outcomes Data Evaluation and Management System to measure patient expectations; however, this scoring system was not developed or validated for that purpose. Mancuso et al developed the 17-item Hospital for Special Surgery Shoulder Surgery Expectations Survey.[14] This survey was used in 2 additional studies to correlate preoperative expectations with preoperative self-assessed functional outcome and demographic variables.[9,27] A survey with 17 items requires a reasonable amount of time to complete and, in our opinion, makes it difficult to analyze which patient expectations are most relevant.

As both higher preoperative expectations and meeting of the patient's expectations after shoulder surgery seem to be associated with clinical outcome and patient satisfaction, more research is needed concerning patient expectations before shoulder surgery. Patient expectations may differ and be specific to body parts, clinical conditions, and interventions. We therefore thought it was important that in both clinical practice and future studies, patient expectations before shoulder surgery should be assessed with a shoulder-specific, valid, and reliable measurement instrument. The aim of this study was therefore to develop a new shoulder expectations survey. This survey should contain only the most relevant patient expectations before shoulder surgery, should be validated and reliable, and should be related to clinical outcomes. The survey should also be easy to use to facilitate the shoulder surgeon's discussion of expectations with the individual patient to find the best available treatment option.

Materials and methods

This study was conducted in 4 phases (Table I), using the Consensus-based Standards for the Selection of Health Status Measurement Instruments (COSMIN, an international consensus on taxonomy, terminology, and definitions of measurement properties).[18,19] First, patient expectations before surgery were identified, and the Patient Expectations of Shoulder Surgery (PESS) survey was developed. Second, the association of expectations with clinical outcome after shoulder surgery was analyzed. Third, the content validity of the PESS survey was determined. Fourth, the reliability of the PESS survey was assessed. Participants were informed about the study using a patient information letter, and patients had the opportunity to ask questions about the study. Then, informed consent was received orally and formally recorded in the digital patient records.

Phase 1: identifying patient expectations and developing the PESS survey

Obtaining baseline information and expectations

We prospectively collected expectations of all consecutive adult patients (age 16+ years) for whom all types of elective shoulder surgery were planned between January 1, 2011, and May 31, 2013. Patients were recruited from a single general teaching hospital with 2 shoulder surgeons. During the study period, 422 patients presented and were approached for the study. Of these, 77 patients refused to participate, 6 patients were excluded as they were unable to complete the questionnaires because of language problems, and the expectations of 4 patients were not registered completely during the preoperative assessment. The expectations of 20 patients were too vague or they could not articulate their expectations and they were therefore excluded, leaving a study group consisting of 315 patients. If patients underwent more than 1 operation on 1 or both shoulders in the study period, only the first operation was included.

Patients were assessed by a physiotherapist, not involved in the treatment of these patients, at our shoulder unit 2 to 3 weeks before surgery. Patients were asked an open-ended question: What are your expectations of the surgery you are going to have on your shoulder? The patient's response was written down in a brief and compact summary. Then, the physiotherapist asked the patient if this summary correctly reflected the expectations of the patient regarding shoulder surgery. The expectations of patients were collected using standardized case report forms and transferred into a study-specific database. In addition, the following preoperative demographic and clinical variables were collected: age, gender, dominant side, duration of shoulder complaints, and whether the patient has a history of surgery on the same shoulder.

The Disabilities of the Arm, Shoulder, and Hand (DASH) score was chosen to measure patient-reported clinical outcome. The DASH questionnaire is a 30-item, self-reported questionnaire designed to measure physical function and symptoms in people with any of several musculoskeletal disorders of the upper limb.[11] The DASH has been shown to be reliable, valid, and responsive in patients with shoulder disability[3] and has been validated in Dutch for patients with a disorder of the upper limb.[26]

Analyzing patients' expectations

All open-ended responses were reviewed with qualitative techniques to ascertain major themes or concepts.[1,16,17,22] Two experienced shoulder surgeons independently examined the blinded open-ended

Table I Flow diagram outlining the 4 study phases

Phase 1	Phase 2	Phase 3	Phase 4
Identifying patient expectations and developing the draft PESS survey	**Association between expectations of draft survey and clinical outcome**	**Testing content validity and developing final PESS survey**	**Testing test-retest reliability of PESS survey**
Based on interviews with open-ended questions of 315 patients	Based on data of patients in phase 1	Based on expert panel of 10 patients scheduled for shoulder surgery	Based on administration of the survey to a new sample of 50 patients

PESS, Patient Expectations of Shoulder Surgery.

responses and categorized the expectations on the basis of the major themes they represented. The aim was to limit the number of categories of expectations to a maximum of 8 to develop a compact and practical survey with a small number of items. All open-ended responses were then reviewed again by both reviewers using a consensus-based process and coded by category. Frequencies of categories were calculated.

Assembling the draft survey

Each reviewer independently developed a list of survey items, based on the most frequently cited expectation categories. The 2 reviewers' lists of survey items were put together, and the draft survey was finalized by discussing the items and achieving consensus. The most frequently cited categories of expectations were included in the draft survey. Categories were selected only if they had been cited by 5% or more of patients, as previously used by Mancuso et al.[14] If an expectation was cited by <5% of patients but this expectation was considered clinically relevant by the 2 reviewers, this expectation could be entered into the draft PESS survey. Categories were then phrased as questions with terminology typically used by patients discussing shoulder problems. For each category, patients will be able to indicate how important this expectation is for the treatment of their shoulder and choose between "this does not apply to me," "I do not expect this," "this is a little important," "this is somewhat important," and "this is very important."

Phase 2: association between expectations of the draft survey and clinical outcome after surgery

After the development of the survey, we analyzed if clinical outcome after surgery and the presence of psychological symptoms before surgery were associated with patient expectations. Data from patients of phase 1 were used, with patient expectations collected with open-ended questions. The clinical outcome was the change in DASH scores before and 1 year after surgery. The expectations of the study population of 315 patients, collected by open-ended questions, were categorized as present or not present for each of the items of the draft PESS survey on a consensus basis by the 2 shoulder surgeons. To investigate how reliably the responses on the open-ended patient expectations question could be classified with the final PESS survey, 2 shoulder surgeons blindly categorized a random sample of 200 patients, of the study population of 315 patients of phase 1, on 2 separate occasions. The classification of the expectations, collected by open-ended questions, into the items of the PESS survey by 2 surgeons was analyzed for intraobserver and interobserver variability by calculating Cohen's κ.

Phase 3: testing content validity

Content validity was assessed by a panel of 10 patients scheduled for shoulder surgery who were not involved in the first phase of this study. These patients were representative of patients who underwent shoulder surgery with a variety of shoulder operations, age, and gender. These patients were given access to the draft survey and were asked to provide feedback on whether they considered each item of the draft to be relevant and comprehensive for the measurement of patient expectations before shoulder surgery. This group evaluated each item and provided an opinion on how well the wording of each item measured the expectation. This information was used to make alterations to the items to develop an assessment tool that yields the highest degree of content validity possible. The feedback was analyzed and used to inform the development of the final PESS survey. Content validity testing was performed with a Dutch patient panel, all capable of understanding the English language. The Dutch version was analyzed first and the English version second.

Phase 4: testing test-retest reliability

After assessing the content validity, test-retest reliability was evaluated with a new sample of patients. All consecutive patients waiting for elective shoulder surgery in clinical practice, during a 6-month period, were asked to complete the PESS survey on 2 separate occasions, 3 weeks and 1 week before surgery. These expectations were scored from 1 point for "this does not apply to me" to 5 points for "this is very important." Test-retest reliability was determined by calculating the intraclass correlation coefficient (ICC) and 95% confidence intervals (95% CIs) for the scores of each of the items in the PESS survey separately. Items with an ICC value above 0.40 were retained in the final PESS survey.

Statistical analysis

Baseline data are presented as percentage, mean (standard deviation), or median (range) when data were not normally distributed. Cohen's κ was calculated to assess interobserver and intraobserver reliability, and test-retest reliability was determined by the ICC for each of the items in the PESS survey. A κ value of 0.41-0.60 indicated a moderate agreement, 0.61-0.80 indicated a good agreement, and 0.81-1.00 showed a very good agreement.[12] Reliability of items with an ICC value of <0.40 was considered poor; between 0.40 and 0.59, fair; between 0.60 and 0.74, good; and >0.75, excellent.[2]

The association between the presence or absence of expectations and the DASH change score was analyzed using independent samples *t*-tests. Although groups were too small for full multivariate analysis, exploratory logistic regression was performed to assess associations between age, gender, and duration of symptoms and each of the 6 patient expectations separately. *P* values < .05 were considered significant. SPSS statistical software (version 20.0; IBM, Armonk, NY, USA) was used for data compilation and statistical analyses.

Results

Phase 1: identifying patient expectations and developing the PESS survey

Clinical and demographic baseline characteristics and clinical outcome of the study population are shown in Table II.

Expectations

In the study population of 315 patients, a total of 468 expectations were expressed, with a mean of 1.4 items per patient. Although the 2 shoulder surgeons analyzed the patient expectations separately, they both managed to categorize most expectations into 6 categories. The content of these 6 categories was identical between the 2 surgeons; only the description was somewhat different. The 2 surgeons decided to use these

Table II Demographic characteristics of included patients

	N = 315
Age, y	52.7 (16.5)
Male gender	165 (52.4)
Previous surgery	33 (10.5)
Dominant side	114 (36.2)
Duration of symptoms, mo	31.9 (41.4)
DASH preoperative score	41.3 (20.8)
DASH postoperative score	17.5 (17.3)

DASH, Disabilities of the Arm, Shoulder, and Hand.
Categorical variables are presented as number (%). Continuous variables are presented as mean (standard deviation).

6 categories for the draft PESS survey, and based on consensus, the following items were constructed: pain relief, improved range of motion, improved ability to perform daily activities, improved ability to perform work, improved ability to participate in recreational activities and sports, and stop shoulder from dislocating. Each of these expectations was cited by >5% of all patients (Table III). Although "stop shoulder from dislocating" was cited only in the group with instability, we consider this expectation relevant in this subgroup, so we decided to include this expectation in the PESS survey.

Expectations and demographic and functional status

Exploratory logistic regression analyses were performed to test whether age, gender, and duration of symptoms were associated with the patient expectations included in the survey. We found that increased age was associated with the expectations of pain relief (odds ratio [OR], 1.044 [95% CI, 1.026-1.063]) and improved ability to perform daily activities (OR, 1.035 [95% CI, 1.015-1.056]), whereas younger age was associated with improved ability to perform recreational activities and sports (OR, 0.960 [95% CI, 0.943-0.977]) and no more dislocations (OR, 0.924 [95% CI, 0.899-0.950]). In addition, men more often expected improved ability to perform work (OR, 2.332 [95% CI, 1.033-5.266]) but less often pain relief (OR, 0.467 [95% CI, 0.256-0.853]). Patients experiencing longer duration of symptoms before surgery more often expected no more dislocations (OR, 1.014 [95% CI, 1.005-1.023]).

Table IV Association of patient expectations with clinical outcome

Expectation mentioned		Change in DASH score	
		Mean (SD)	*P* value
Relief of pain	Yes	−25.8 (22.7)	**.003**
	No	−16.0 (18.0)	
Range of motion	Yes	−24.1 (20.0)	.958
	No	−23.8 (22.4)	
Daily activities	Yes	−30.4 (18.0)	**.015**
	No	−22.2 (22.8)	
Work	Yes	−26.6 (26.9)	.494
	No	−23.5 (21.6)	
Recreational activity/sports	Yes	−19.2 (21.0)	.106
	No	−24.9 (22.3)	
Dislocation	Yes	−13.2 (17.9)	**.015**
	No	−24.9 (22.3)	

DASH, Disabilities of the Arm, Shoulder, and Hand; *SD*, standard deviation.
The **boldface values** indicate significant association.

Phase 2: association between expectations of the draft survey and clinical outcome after surgery

The reported expectations in the study population could be well sorted into the categories of the final PESS survey by the 2 orthopedic surgeons, with an excellent intraobserver and interobserver variability (intraobserver variability, 0.95 and 0.96; interobserver variability, 0.96). The following expectations were significantly associated with DASH change score (Table IV): relief of pain ($P = .003$), improved ability to perform daily activities ($P = .015$), and no more dislocation ($P = .015$).

Table III Most frequently cited expectations by diagnosis

	Subacromial pain syndrome	Complete rotator cuff rupture	Acromioclavicular osteoarthritis	Instability	Glenohumeral osteoarthritis	Other	Total
	n = 40	n = 82	n = 35	n = 66	n = 48	n = 45	N = 316
Pain relief	35 (88)	69 (84)	32 (91)	31 (47)	45 (94)	38 (85)	250 (79)
Improved range of motion	5 (13)	5 (6)	2 (6)	4 (6)	7 (15)	5 (11)	28 (9)
Improved ability to carry out activities of daily living	5 (13)	23 (28)	7 (20)	3 (5)	15 (31)	9 (20)	62 (20)
Improved ability to perform sport/recreational activities	3 (8)	12 (15)	4 (11)	28 (42)	9 (19)	6 (13)	62 (20)
Improved ability to perform work	6 (15)	13 (16)	4 (11)	7 (11)	1 (2)	0 (0)	31 (10)
Stop shoulder from dislocating	0 (0)	1 (1)	0 (0)	29 (44)	1 (2)	0 (0)	31 (10)

Values are presented as number (%).

How important are these expectations in the treatment for your shoulder?	This does not apply to me	I do not expect this	A little important	Somewhat important	Very important
Patient expectations					
Relief of pain	1	2	3	4	5
Improved shoulder range of motion	1	2	3	4	5
Improved ability to perform daily activities	1	2	3	4	5
Improved ability to perform work	1	2	3	4	5
Improved ability to participate in sports	1	2	3	4	5
Stop shoulder from dislocating	1	2	3	4	5

Figure 1 Patient Expectations of Shoulder Surgery (PESS) survey.

Phase 3: testing content validity

The patient panel reviewed the draft survey and provided feedback on relevance and comprehension of the expectation items in the survey. The patient panel was uniformly convinced that all 6 categories of patient expectations were relevant for patients scheduled for shoulder surgery. Suggestions were given by the panel to adapt the formulation of the items. The feedback was analyzed, informed decisions were made, and the final survey was constructed (Fig. 1).

Phase 4: testing-retesting the draft survey for reliability

A new sample of 51 consecutive patients from the same shoulder practice with various shoulder diagnoses was enrolled in the test-retest reliability phase and filled in the PESS survey 3 weeks before surgery and again 1 week before surgery. ICC values for the 6 draft items were all well above the predefined cutoff point rated 0.52-0.92 (Table V). All 6 items had ICC values above 0.40, and all these 6 items were retained in the final PESS survey (Fig. 1).

Table V Test-retest reliability of the Patient Expectations of Shoulder Surgery (PESS) survey

	ICC (95% CI)
Relief of pain	0.89 (0.81-0.93)
Improved range of motion	0.52 (0.29-0.70)
Improved ability to perform daily activities	0.70 (0.52-0.82)
Improved ability to perform work	0.70 (0.53-0.82)
Improved ability to participate in recreational activity/sports	0.92 (0.87-0.95)
Stop shoulder from dislocating	0.65 (0.46-0.79)

ICC, intraclass correlation coefficient; *CI*, confidence interval.

Discussion

In this study, the PESS survey was developed. The PESS survey is a valid and reliable survey and easy to use in daily practice and in research projects. The answers to the open-ended questions by patients were the base of this survey, and patients were actively involved in this study by determining the content validity of this survey. Each question of the PESS survey should be considered independently. The 6 questions included in the PESS survey represent distinct, independent domains. A total score would not properly represent the diversity of the questions.

Nocturnal symptoms are a prominent component of shoulder disease for many patients. “Relief from nighttime pain” is part of the Hospital for Special Surgery Shoulder Surgery Expectations Survey,[14] and “sleep more comfortably” is part of the Musculoskeletal Outcomes Data Evaluation and Management System.[10,21,23] In our study population, only 18 of the included 315 patients reported these expectations. The aim of our study was to limit the number of categories of expectations of the PESS survey to a maximum of 8 to develop a compact and practical survey with a small number of items. Expectation about nocturnal symptoms was not a frequently cited category and was therefore not included in the survey. In the instability group, 44% of patients reported the expectation of stop the shoulder from dislocating. The shoulder instability group included patients with shoulder pain caused by shoulder instability but without a history of shoulder dislocations. These patients did not expect treatment to

stop the shoulder from dislocating, but they expressed other expectations, like relief of pain.

The PESS survey may be used in future studies about patient expectations before shoulder surgery. In future studies, patient expectations could be explored in all different shoulder operative procedures and correlated with clinical outcome and patient satisfaction. Results of these studies can be relevant for clinical decision-making to find the best available treatment for individual patients. Patient expectations, identified by the PESS survey, can further be discussed with the patient to compare patient expectations with physician expectations and with the expected outcome after shoulder surgery. Preoperative patient expectations should be realistic and attainable after shoulder surgery. The challenge is to match patient and physician expectations before shoulder surgery to improve postoperative satisfaction.[27] If certain patient expectations are associated with poor outcome, identification of those patient expectations could be used before surgery to discuss other treatment options with patients.[6] Furthermore, the level of expectations might be modulated by preoperative discussion and education, as suggested in a previous study of total knee arthroplasty[15]; this would contribute to the optimization of care and maximization of postoperative satisfaction.[21,23]

Several studies addressed the total number of patient expectations after shoulder surgery with clinical outcome.[10,21,23] In the orthopedic literature, higher expectations were associated with postoperative outcome.[9,10,14,15,20,23] Patients with worse baseline subjective scores had a greater number of expectations compared with those with better baseline subjective scores.[9,10,14] The association of specific patient expectations before shoulder surgery with clinical outcome has been investigated only by Warth et al.[27] Before arthroscopic shoulder surgery, a desire to continue participation in sporting activities was associated with improved American Shoulder and Elbow Surgeons scores.

It is important that future studies analyze the overlap and interaction of different patient expectations. The PESS survey focuses on patient expectations related to outcomes in 2 areas: 3 items are concerned with shoulder-specific expectations (shoulder pain, range of motion, and shoulder dislocation), and 3 concern expectations regarding activities (in daily life, work, and sport/recreation). There might be interaction and some overlap between the shoulder-specific and the activities expectations. Further studies should address the clinical relevance of the interaction and overlap and the associations between patient outcome expectations as assessed with the PESS survey and other types of expectations, like process and self-efficacy expectations.[7]

We studied the association between patient expectations of the PESS survey and clinical outcome after shoulder surgery by using the data from our study population of phase 1. Patients' expectations collected by open-ended questions were categorized as present or not present for each of the items of the PESS survey, and then the association with clinical outcome after surgery was assessed. In 3 categories of patient expectations, an association with clinical outcome was observed, indicating that future research with prospectively collected data is necessary to observe whether patients with certain expectations do better or worse after specific shoulder surgery. Future studies could analyze whether psychological symptoms are associated with patient expectations before shoulder surgery. Relevant psychological constructs like treatment credibility, hope, optimism, and pessimism were studied before by Haanstra et al.[6] A strong correlation ($r = 0.82$) between treatment expectancy and treatment credibility was observed.

The strength of this study is that the PESS survey was constructed on the basis of answers to open-ended questions by an independent researcher. The content validity was determined by a representative group of patients waiting for shoulder surgery. The draft shoulder expectations survey was analyzed by these patients for relevance and comprehensiveness, according to the recommendation by the COSMIN group. The draft survey was refined on the basis of the patient panel's feedback. In the future, other clinimetric properties like construct validity have to be tested according to COSMIN guidelines. There are some limitations in this study that need to be discussed. Because we planned to develop a shoulder expectations survey for patients waiting for different shoulder operative procedures, we analyzed a heterogeneous population of patients with shoulder complaints with different diagnoses, with different planned surgery, levels of pain, and duration of symptoms. Therefore, some patient expectations of the survey might be more relevant to certain subgroups of shoulder patients. Future studies could identify whether the PESS survey is suitable in all different shoulder diagnoses and surgery procedures. Furthermore, only 1 center was included in the study. Patient expectations, however, are partly dependent on previous care and cultural and perhaps even regional assumptions and beliefs[5]; therefore, cross-cultural validation of the PESS survey is necessary before it is widely implemented in research and practice. The study was performed in The Netherlands, and expectations were collected in Dutch. The draft PESS survey was first developed in Dutch. During the content validity testing, the patient panel analyzed the Dutch version first and then the English version of the draft PESS survey. All patients of the panel speak and understand English well, and they were able to evaluate the English version of the draft PESS survey and could provide an opinion on how well the wording of each item measured the expectation.

Conclusion

The PESS survey is a valid and reliable survey that can be used in future clinical research. The patient expectations identified in this survey were clinically relevant and associated with clinical outcome. The PESS survey is easy to use in daily orthopedic practice. We believe that the preoperative evaluation of patient expectations should be a standard procedure in all different shoulder surgery procedures.

Acknowledgments

Special thanks to Marcel Ipskamp, Robert Spenkelink, and Marleen Jaspers, shoulder physiotherapists, who helped with the design of this study and data collection. We especially thank Hannie Elskamp, research nurse of our orthopedic department, who collected data.

Disclaimer

The authors, their immediate families, and any research foundations with which they are affiliated have not received any financial payments or other benefits from any commercial entity related to the subject of this article.

References

1. Berkwits M, Inui TS. Making use of qualitative research techniques. J Gen Intern Med 1998;13:195-9.
2. Cicchetti DV. Guidelines, criteria, and rules of thumb for evaluating normed and standardized assessment instruments in psychology. Psychol Assess 1994;6:284-90.
3. Desai AS, Dramis A, Hearnden AJ. Critical appraisal of subjective outcome measures used in the assessment of shoulder disability. Ann R Coll Surg Engl 2010;92:9-13. http://dx.doi.org/10.1308/003588410X12518836440522
4. Gandhi R, Davey JR, Mahomed N. Patient expectations predict greater pain relief with joint arthroplasty. J Arthroplasty 2009;24:716-21. http://dx.doi.org/10.1016/j.arth.2008.05.016
5. Haanstra TM, Hanson L, Evans R, van Nes FA, De Vet HC, Cuijpers P, et al. How do low back pain patients conceptualize their expectations regarding treatment? Content analysis of interviews. Eur Spine J 2013;22:1986-95. http://dx.doi.org/10.1007/s00586-013-2803-8
6. Haanstra TM, Tilbury C, Kamper SJ, Tordoir RL, Vliet Vlieland TP, Nelissen RG, et al. Can optimism, pessimism, hope, treatment credibility and treatment expectancy be distinguished in patients undergoing total hip and total knee arthroplasty? PLoS One 2015;10:e0133730. http://dx.doi.org/10.1371/journal.pone.0133730
7. Haanstra TM, van den Berg T, Ostelo RW, Poolman RW, Jansma EP, Cuijpers P, et al. Systematic review: do patient expectations influence treatment outcomes in total knee and total hip arthroplasty? Health Qual Life Outcomes 2012;10:152. http://dx.doi.org/10.1186/1477-7525-10-152
8. Hamilton DF, Lane JV, Gaston P, Patton JT, Macdonald D, Simpson AH, et al. What determines patient satisfaction with surgery? A prospective cohort study of 4709 patients following total joint replacement. BMJ Open 2013;3:1-8. http://dx.doi.org/10.1136/bmjopen-2012-002525
9. Henn RF 3rd, Ghomrawi H, Rutledge JR, Mazumdar M, Mancuso CA, Marx RG. Preoperative patient expectations of total shoulder arthroplasty. J Bone Joint Surg Am 2011;93:2110-5. http://dx.doi.org/10.2106/JBJS.J.01114
10. Henn RF 3rd, Kang L, Tashjian RZ, Green A. Patients' preoperative expectations predict the outcome of rotator cuff repair. J Bone Joint Surg Am 2007;89:1913-9. http://dx.doi.org/10.2106/JBJS.F.00358
11. Hudak PL, Amadio PC, Bombardier C. Development of an upper extremity outcome measure: the DASH (disabilities of the arm, shoulder and hand). The Upper Extremity Collaborative Group (UECG). Am J Ind Med 1996;29:602-8.
12. Landis JR, Koch GG. The measurement of observer agreement for categorical data. Biometrics 1977;33:159-74.
13. Mahomed NN, Liang MH, Cook EF, Daltroy LH, Fortin PR, Fossel AH, et al. The importance of patient expectations in predicting functional outcomes after total joint arthroplasty. J Rheumatol 2002;29:1273-9. No doi
14. Mancuso CA, Altchek DW, Craig EV, Jones EC, Robbins L, Warren RF, et al. Patients' expectations of shoulder surgery. J Shoulder Elbow Surg 2002;11:541-9. http://dx.doi.org/10.1067/mse.2002.126764
15. Mancuso CA, Graziano S, Briskie LM, Peterson MG, Pellicci PM, Salvati EA, et al. Randomized trials to modify patients' preoperative expectations of hip and knee arthroplasties. Clin Orthop Relat Res 2008;466:424-31. http://dx.doi.org/10.1007/s11999-007-0052-z
16. Mays N, Pope C. Observational methods in health care settings. BMJ 1995;311:182-4.
17. Mays N, Pope C. Rigour and qualitative research. BMJ 1995;311:109-12.
18. Mokkink LB, Terwee CB, Patrick DL, Alonso J, Stratford PW, Knol DL, et al. The COSMIN study reached international consensus on taxonomy, terminology, and definitions of measurement properties for health-related patient-reported outcomes. J Clin Epidemiol 2010;63:737-45. http://dx.doi.org/10.1016/j.jclinepi.2010.02.006
19. Mokkink LB, Terwee CB, Patrick DL, Alonso J, Stratford PW, Knol DL, et al. The COSMIN checklist for assessing the methodological quality of studies on measurement properties of health status measurement instruments: an international Delphi study. Qual Life Res 2010;19:539-49. http://dx.doi.org/10.1007/s11136-010-9606-8
20. Mondloch MV, Cole DC, Frank JW. Does how you do depend on how you think you'll do? A systematic review of the evidence for a relation between patients' recovery expectations and health outcomes. CMAJ 2001;165:174-9.
21. Oh JH, Yoon JP, Kim JY, Kim SH. Effect of expectations and concerns in rotator cuff disorders and correlations with preoperative patient characteristics. J Shoulder Elbow Surg 2012;21:715-21. http://dx.doi.org/10.1016/j.jse.2011.10.017
22. Strauss A, Corbin J. Basics of qualitative research: techniques and procedures for developing grounded theory. 2nd ed. Thousand Oaks, CA: Sage Publications; 1998.
23. Tashjian RZ, Bradley MP, Tocci S, Rey J, Henn RF, Green A. Factors influencing patient satisfaction after rotator cuff repair. J Shoulder Elbow Surg 2007;16:752-8. http://dx.doi.org/10.1016/j.jse.2007.02.136
24. Tilbury C, Haanstra TM, Leichtenberg CS, Verdegaal SH, Ostelo RW, de Vet HC, et al. Unfulfilled expectations after total hip and knee arthroplasty surgery: there is a need for better preoperative patient information and education. J Arthroplasty 2016;31:2139-45. http://dx.doi.org/10.1016/j.arth.2016.02.061
25. Tolk JJ, van der Steen MC, Janssen RP, Reijman M. Total knee arthroplasty: what to expect? A survey of the members of the Dutch Knee Society on long-term recovery after total knee arthroplasty. J Knee Surg 2016 Nov 23[Epub ahead of print].http://dx.doi.org/10.1055/s-0036-1593868.
26. Veehof MM, Sleegers EJ, van Veldhoven NH, Schuurman AH, van Meeteren NL. Psychometric qualities of the Dutch language version of the Disabilities of the Arm, Shoulder, and Hand questionnaire (DASH-DLV). J Hand Ther 2002;15:347-54.
27. Warth RJ, Briggs KK, Dornan GJ, Horan MP, Millett PJ. Patient expectations before arthroscopic shoulder surgery: correlation with patients' reasons for seeking treatment. J Shoulder Elbow Surg 2013;22:1676-81. http://dx.doi.org/10.1016/j.jse.2013.05.003