Translation of a Dutch Version of the Total Shoulder Arthroplasty Postoperative Satisfaction Questionnaire

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To our knowledge, no Dutch questionnaires exist to administer patient satisfaction after total shoulder arthroplasty. The goal of this study is to develop a Dutch translation of the satisfaction questionnaire used by Swarup et al. (2017)[1], into Dutch. This ensures the suitability for clinical application an application in research in all Dutch-speaking regions worldwide. A forward-backward translation approach was used. The clarity of the pre-final version was tested on 8-35 post-operative total shoulder arthroplasty patients. The responses of the patients were studied at one single time point. The Dutch translation of the satisfaction questionnaire proposed by Swarup et al. (2017)[1] was considered clear to more than 80% of patients, which was set as norm value where the questionnaire can be assumed clear and understable. The Dutch translation of the postoperative satisfaction questionnaire by Swarup et al. (2017)[1] met the 80% clarity criterion and can be considered clear. This study provides a base for future research assessing the psychometric properties of this questionnaire.

Keywords: Patient satisfaction, Total shoulder arthroplasty, Translation procedure, Self-reported outcome measures.

INTRODUCTION

Over the past few decades, total shoulder arthroplasties have proven their effectiveness as surgical intervention at relieving pain, regaining functionality, improving strength and range of motion in patients suffering from shoulder-related disorders[2,3]. Every year, thousands of people must undergo these surgeries, a phenomenon that will likely increase with the growing demographic shift toward an aging population where the mean age rises[4-6]. As healthcare evolves, the increasing incidence of shoulder arthroplasties calls for a more nuanced reassessment of postoperative protocols[7,8]. Traditional biomedical perspectives are now complemented by a growing emphasis on the subjective patient reported outcomes, which is defined by Cochrane Handbook for Systematic reviews for Interventions version 6.3 as "any report of the status of a patient's health condition that comes directly form the patient without interpretation of the patient's response by a clinician or anyone else" (FDA 2009)[9]. This shift also includes an increased focus on postoperative satisfaction, reflecting a broader recognition of the multifaceted dimensions of surgical success. In 2013, Shirley E defined patient-satisfaction as an "individual's cognitive evaluation of, and emotional reaction to, his or her health-care experience"[10]. However, due to its subjective nature of concept and the great amount of factors that could influence this, it is not easy to evaluate[11]. The importance of this patient satisfaction lies in the facts that it is the primary goal of the surgical procedure, since no satisfaction means that the surgery has failed from the patient's perspective[12]. In addition, the obtained patient satisfaction data can be used to improve the quality of care by identifying areas for improvement and developing new guidelines[13]. Moreover, increased satisfaction has the penitential to improve health outcomes[14]. Lastly, increased satisfaction can lead to better compliance with the physician's proposed treatment plan, making postoperative rehabilitation easier, which can be beneficial for physical therapists[15]. Even though there is a shift in the importance of postoperative patient satisfaction, there is still a lack of questionnaires measuring patients' postoperative satisfaction in upper limb arthroplasties and thus with total shoulder arthroplasty[16]. Recognizing this necessity and the limited availability of satisfaction questionnaires, an English-language satisfaction questionnaire was composed in 2017 by Swarup et al. (2017)[1]. To this

Anke Claes, Cato Boon, Simon Verhaegen, Femke Bosmans, Filip Struyf, Olivier Verborgt

date, the satisfaction questionnaire has not yet been translated into Dutch. The introduction of a Dutch-language version of the customized questionnaire for assessing postoperative satisfaction among total shoulder arthroplasty patients would significantly enrich research efforts in this area. This effort broadens the accessibility of the questionnaire and facilitates cross-cultural comparisons, promoting deeper insights into patient satisfaction in different linguistic and cultural contexts. It could also be valuable information during postoperative rehabilitation. A Dutch translation of the satisfaction questionnaire would also be beneficial for future clinical research.

Therefore, this study aims to carry out a standardized translation procedure of the satisfaction questionnaire originally used by Swarup et al. to develop a Dutch translation of the questionnaire for integration into clinical practice and research[1].

MATERIALS AND METHODS

Translation procedure

The Dutch translation procedure of this satisfaction questionnaire used by Swarup et al. (2017) was conducted using a forward-backward translation protocol[1]. The guidelines proposed by Beaton et al. (2000)[17] and Ortiz-Gutierrez et al. were used. The translation procedure consisted of five steps that were followed chronologically, a visual overview can be found in Table I.

The first step involved the forward translation, from English (original language) to Dutch (target language). A team of translators comprised a total of four individuals: three recognized and licensed translators and one physiotherapist. A physiotherapist was included to ensure that at least one team member was familiar with the professional jargon in the questionnaire. Each translator performed the translation independently.
The second step consisted of a consensus meeting between the forward translators. Any discrepancies were addressed, and the group reached consensus through discussion. This resulted in one Dutch translation.

During the third step, the final Dutch translation was translated back into English. Two native English speakers, independently, translated the questionnaire.

The fourth step was the expert committee where the three translators of step one, the two native speakers of the second step, and the researchers, discussed the previously developed questionnaires with the aim of achieving a Dutch version equivalent to the original questionnaire. Decisions were be made collectively, with each participant's viewpoint being equally valued. In cases of differing opinions, discussions were held until consensus was reached.

In this last step, the pre-final version of the translated questionnaire underwent field testing. The aim was to ensure the translated version maintains its equivalence. The clarity of the questions was evaluated using yes/no questions. If more than 20% of participants reported a question as unclear, the translated question may not be sufficiently understandable for the target population. A question is considered clear when at least 80% of participants respond "yes"[18].

Study design and study population

Patients were eligible if they underwent a total shoulder arthroplasty procedure performed by an experienced orthopaedic surgeon OV at AZ Monica Hospital in Belgium between January 1, 2023, and July 31, 2023. Patients had to be aged 18 years or older, Dutch speaker and literate. The sample size was set to be 8-30 patients, based on previous conducted studies[17-25]. Detailed information was recorded, including age and gender. All patients must sign an informed consent before participating in the study. All enrolled patients were thoroughly briefed on the study's purpose, objectives and methodology. This information was also made available in the informed consent document, wherein patients affirmed their willingness to partake in the study and consented to the use of their data. The study obtained approval from both the central and local ethical committees of the University Hospital of Antwerp (UZA) and AZ Monica under reference number 19/48/559. Before the commencement of

Table I. — Visual overview translation procedure.

TRANSLATION PROCEDURE		
# STEP	DESCRIPTION	CONDUCTED BY
Step 1	Forward translation	Three independent translators (native Dutch speakers)
Step 2	Synthesis	Researchers and translators
Step 3	Backward translation	Two independent translators (native English speakers)
Step 4	Expert committee	Researchers and translators
Step 5	Testing pre-final version	Researchers

the study, all participants provided written informed consent by email. The informed consent form can be found in Appendix 1.

Procedure and data collection

Eligible patients were contacted by telephone to invite them to participate. Patients were asked to complete and return the Dutch satisfaction questionnaire by email. After receiving the completed questionnaire, its clarity was assessed through a follow-up call. During this call, each question is reviewed orally with yes/no responses to determine clarity, allowing patients to provide immediate feedback. These steps are followed chronologically, a visual overview can be found in Table II.

Questionnaire

The questionnaire comprised eight questions addressing the patients' satisfaction. The questions included inquiries about pain relief, improvement in daily activities, satisfaction with the results, enhancement in quality of life, and whether the patient would choose to undergo the surgery again. Each question had different possible answers. Seven questions had 5 possible answers. One question had only 3 possible answers. Each possible answer was converted in a satisfaction score. With "very satisfied" corresponding to a score of 4 and "very dissatisfied" corresponding to 0. This was the case for five of the eight questions. Two other questions were also rated from zero to four, with four being more satisfied. The other question was rated zero, two or four. The total score of the questionnaire is calculated by the sum of the scores of the individual questions, divided by 32 (the maximum possible score) and multiplied by 100, to convert it to a scale of 0-100. The equation can be found in Figure 1. A higher total score suggests a greater level of satisfaction across various aspects evaluated in the questionnaire. The complete translated satisfaction questionnaire including the scoring mechanism can be found in Appendix 2.

RESULTS

Translation

No major variations in content were seen between translators. Only minor variations were found in sentence structure and word choices. During consensus meeting all minor differences in translation were corrected, developing one questionnaire. The communication was well-structured, this ensured that the translation was accurate and representative.

Notably, for question 2, the group initially favored ''pijndemping'' in the forward translation. However, reviewing the backward translation by the native speakers, it became apparent that this choice did not align adequately with the original questionnaire. Consequently, the decision was made, as a group, to adopt ''het verlichten van pijn''. The final version was a product of genuine collaboration within the entire expert committee, valuing each member's contribution and opinion equally.

Finally, the pre-final version of the Dutch translation was created by the expert committee. The scoring mechanism and lay out was added by the researchers, the definitive Dutch translation of the satisfaction questionnaire can be found in Appendix 2.

Fig. 1 — Total satisfaction score.
*Score obtained after completing all the questions; **Converted score to a 0-100 scale.

$$\frac{Total\ score*}{32} * 100 = Final\ score**$$

Table II. — Study protocol.

STUDY PROTOCOL	
# STEP	DISCRIPTION
Step 1 Recruiting	Call 1: contacted by telephone, requested to complete the questionnaire by email + informed consent
Step 2 Collecting	Received questionnaires by email were collected
Step 3 Testing	Call 2: assessment to ascertain all questions and answer options were clear, through yes/no questioning
Step 4 Analyzing	Clear question: if at least 80% of participants responded "yes" to indicate their understanding of the item Unclear question: if over 20% of participants reported a question as unclear

Protocol

In total, thirty-one patients operated on by OV between January 1, 2023 and July 31, 2023 were contacted, of whom six were unreachable. Five patients declined to participate, nineteen of the twenty-four respondents initially agreed to participate and thereby received all information and documents by email. Of those nineteen, two patients initially expressed interest but later declined due to having already completed numerous questionnaires thus were removed from the list. One patient chose to withdraw from the study because he felt unsuitable, as he's still undergoing intensive rehabilitation, due to complications, which are independent of the initial shoulder surgery. Five patients did not respond to the email containing the questionnaire and informed consent, even after follow-up calls to confirm receipt of the email. Ultimately, eleven out of nineteen patients returned the questionnaire and informed consent, which results in a 58% completion rate. The sample size is met.

All patients who completed and returned the questionnaire and informed consent, also participated in the verbal telephone survey regarding the clarity of the questions. This resulted in eleven respondents. Patient characteristics can be found in Table III. Among these eleven patients, ten patients found all questions to be clear. However, one patient indicated that two were unclear, citing the use of broad terms as the source of confusion. The first question that was found unclear by the patient was because of the terms translated as "household chores" and "garden work" were too broad, in his opinion, leading to uncertainty about which specific tasks were included in these concepts. For the second question that was unclear, which concerned leisure activities, the patient had the same feedback, overly broad encompassing wording.

Despite one patient indicating that two questions were unclear, all questions achieved a clarity score exceeding 80%, thus classifying them as clear. The detailed scores are presented in Table IV.

DISCUSSION

To date, no English of Dutch validated questionnaire exists to administer patient satisfaction after total shoulder arthroplasty. A Dutch patient satisfaction questionnaire would ensure that patient satisfaction can be measured the same way in all Dutch-speaking patients in clinical practice and in scientific research.

All questions of the pre-final version met the norm value of 80%, which indicates that all the questions were considered clear[18]. This study is of added value for future research validating this Dutch translated version of the patient satisfaction questionnaire so it can be implemented in clinical practice. Numerous questionnaires have been translated into a variety of languages, equivalent to the design of this study[26-30]. The process of translating these questionnaires is governed by several established protocols[26,27,29,31,32]. Each of these translation methods is designed to ensure the highest quality and accuracy of the translated questionnaires. This specific protocol of Beaton et al. (2000)[17], known for its approach to cross-cultural adaptation, has been used by a large number of studies to maintain consistency in the translation process[31,33-38].

For the Dutch speaking population multiple shoulder specific patient-reported outcome measures have been translated and validated. For example, the Disability of the arm, shoulder and hand (DASH), Shoulder pain and disability index (SPADI), Shoulder rating questionnaire (SRQ) and the American shoulder and elbow surgeons (ASES)[39-41]. However, none of these questionnaires focus solely on the postoperative patient satisfaction. The post operative patient satisfaction questionnaire of Swarup et al. (2017) has the advantage of purely focusing on the postoperative satisfaction aspect1. Because of this, the satisfaction questionnaire can provide a detailed insight into specific aspects. Additionally, this focused approach can help healthcare providers to identify specific areas for improvement in postoperative care.

To improve current research, exploring alternative methods of data collection which consider the patient personal circumstances, such as digital forms or in real life meetings, could help address barriers. Using other methods of patient recruitment could have increased the sample size, but this would be pernicious considering the standardization of recruitment. A final limitation of this study is that literal translation is never entirely feasible, which means interpretation bias may always be a concern.

Even though the previous limitations must be considered, there are also multiple strengths that surfaced. The sample size set was rather broad. The achieved sample size of eleven patients was within this range of 10-35 patients. The results of this study

Table III. — Patient characteristics.

Characteristics	
Gender	♂7; ♀4
Age	67 (47-81)
# m postop	12 (9-15)
♂ = male; ♀ = female; # = number; m = months; postop = postoperative.	

Table IV. — Results of clarity.

|	RESULTS QUESTIONS			
N° QUESTION	QUESTION	CLEAR	UNCLEAR	PERCENTAGE
1	Hoe tevreden bent u met de resultaten van uw schouderoperatie op het gebied van:	11	0	100%
	Het verlichten van pijn?	11	0	100%
	De verbetering van de mate waarin u het huishouden kunt doen of in de tuin kunt werken?	10	1	91%
	De verbetering van de mate waarin u vrijetijdsactiviteiten kunt doen?	10	1	91%
2	Hoe tevreden bent u in het algemeen met de resultaten van uw schouderoperatie?	11	0	100%
3	In welke mate heeft de schouderoperatie uw levenskwaliteit verbeterd?	11	0	100%
4	Als u terug in de tijd kon gaan, zou u dan opnieuw kiezen voor de schouderoperatie?	11	0	100%
5	Zou u een totale schouderoperatie aanraden aan een vriend?	11	0	100%
6	Wenst u dat u de operatie aan uw schouder al vroeger had laten uitvoeren?	11	0	100%

would be more credible with a higher sample size. The reasons patients did not agree to participate were not related to the total shoulder arthroplasty. Another strength of this study is that this translated version of the postoperative satisfaction questionnaire is the first Dutch translated version of this instrument. Knowing that this translated version in not yet validated, could serve as a president for further research to explore the psychometric properties of this questionnaire so it can be used in clinical practice and research. In addition, a large number of translator was used in this study. The translation involved both physiotherapist as linguistic experts, insuring quality, and field-specific insights. The Dutch translation crafted underwent a back-translation by two native speakers to maintain fidelity to the original text. Another notable strength of this study is the uniformity in the approach to contacting every patient, ensuring consistency and minimizing potential biases in the recruitment process.

Finally, the protocol used in this research was derived from the framework proposed by Beaton et al. (2000)[17]. Adhering to this protocol ensured the consistency and methodological integrity of this research.

In conclusion, the Dutch translation of the satisfaction questionnaire proposed by Swarup et al. (2017)[1] was clear and understandable, since the 80% norm for clarity was achieved for every question. However, it is important to note that the psychometric properties of this Dutch questionnaire still need to be explored. Overall, this study provides

a valuable foundation for future research to use this questionnaire in broad clinical practice and research. This can improve patient care in Dutch-speaking countries worldwide.

Appendices 1 & 2 (scan QR)
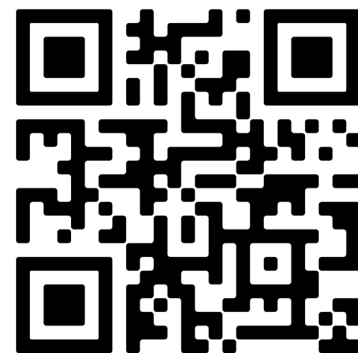
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