Development and testing of the Russian version of Postoperative Quality of Recovery score — the QoR-40 and its short form — QoR-15

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Разработка и апробация русской версии опросника оценки качества восстановления пациента после анестезии — QoR-40 и его краткой формы — QoR-15

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Abstract

INTRODUCTION. To assess the postoperative quality of recovery, patient-completed questionnaires are used in clinical practice and scientific research. **OBJECTIVES.** To create and test Russian versions of postoperative quality of recovery questionnaires QoR-40 and QoR-15. **MATERIALS AND METHODS.** Adult patients with thyroid pathology and hyperparathyroidism undergoing elective surgery were enrolled into the study. Linguistic and cultural adaptation were performed in accordance with international guidelines. The external validity of the Russian versions of the questionnaires was assessed upon the results of patients cognitive interviewing. Reliability, validity and sensitivity to changes in time of Russian versions of QoR-40 and QoR-15 were assessed. **RESULTS.** Overall 144 surgical patients were included in study. The external validity coefficient was 0.96 for QoR-40 and 0.94 for QoR-15. The differences in reproducibility were not significant ($p > 0.05$) for QoR-40 (180.5 and 184.9) and for QoR-15 (120.0 and 119.0). The Cronbach-α coefficient values were 0.92 (high internal consistency) and 0.89 (good internal consistency) for the QoR-40 and QoR-15 questionnaires, respectively. Spearman's correlation coefficient between the Total score of the questionnaire and the Global recovery by VAS was 0.672 ($p < 0.001$) and 0.669 ($p < 0.001$) for QoR-40 and QoR-15, respectively. Patients with low level of postoperative recovery (< 70 scores according to VAS) had lower Total scores of QoR-40 and QoR-15, then patients with high postoperative recovery (≥ 70 by VAS): 165.2 *vs*

Реферат

АКТУАЛЬНОСТЬ. Для оценки качества восстановления больных после анестезии в клинической практике и научных исследованиях применяют опросники, заполняемые пациентами. **ЦЕЛЬ ИССЛЕДОВАНИЯ.** Создание и апробация русских версий опросников качества восстановления после операции — QoR-40 (Quality of recovery 40-item questionnaire) и QoR-15 (Quality of recovery 15-item questionnaire). **МАТЕРИАЛЫ И МЕТОДЫ.** В исследование включали взрослых пациентов с патологией щитовидной железы и гиперпаратиреозом при наличии показаний для проведения хирургического лечения. Перевод и культурную адаптацию проводили в соответствии с современными международными рекомендациями. Внешнюю валидность оценивали на основании результатов тестирования пациентов. Для характеристики психометрических свойств опросников определяли их надежность, валидность и чувствительность. **РЕЗУЛЬТАТЫ.** В исследование включено 144 пациента хирургического профиля с патологией щитовидной железы и гиперпаратиреозом. Коэффициент внешней валидности составил 0,96 балла для QoR-40 и 0,94 балла для QoR-15. Надежность опросников подтверждена хорошими показателями воспроизводимости и внутреннего постоянства: различия в воспроизводимости были не значимы ($p > 0,05$) и составили 180,5 и 184,9 балла (QoR-40) и 120,0 и 119,0 балла (QoR-15); значение α Кронбаха составило 0,92 и 0,89 для опросников QoR-40 и QoR-15 соответственно. Установлена хорошая

186.2; 98.1 *vs* 134.8 respectively ($p < 0.001$). Both tools are sensitive to changes in patients' condition after surgery: Total scores of QoR-40 and QoR-15 were significantly lower after surgery as compared to baseline scores: 186.4 *vs* 181.1 by QoR-40 ($p < 0.001$), 133.8 *vs* 124.9 by QoR-15 ($p = 0.015$). **CONCLUSIONS**. The Russian versions of QoR-40 and QoR-15 are reliable, valid and sensitive tools for assessing the postoperative quality of patient recovery and may be used in both research studies and clinical practice.

KEYWORDS: anesthesia, surgery, enhanced recovery after surgery, quality of life, questionnaire

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конвергентная валидность опросников: коэффициент корреляции Спирмена между общим баллом по опроснику и визуально-аналоговой шкалой (ВАШ) составил 0,672 ($p < 0,001$) и 0,669 ($p < 0,001$) для QoR-40 и QoR-15 соответственно. Подтверждена высокая дискриминантная валидность опросников: в группе больных, у которых степень восстановления по ВАШ < 70 баллов, общий балл по опросникам QoR-40 и QoR-15 значимо меньше, чем у пациентов с высокой степенью восстановления (значения по ВАШ ≥ 70 баллов) —165,2 *vs* 186,2; 98,1 *vs* 134,8 соответственно ($p < 0,001$). Оба опросника чувствительны к изменению в состоянии пациента вследствие операции: через сутки после операции выявлено статистически значимое уменьшение общего балла по опросникам по сравнению с предоперационным значением: для QoR-40 — 186,4 *vs* 181,1 ($p < 0,001$), для QoR-15 — 133,8 *vs* 124,9 ($p = 0,015$). **ВЫВОДЫ.** Русские версии QoR-40 и QoR-15 являются надежными, валидными и чувствительными инструментами для оценки качества восстановления больных после операции и могут применяться в научных исследованиях и клинической практике.

КЛЮЧЕВЫЕ СЛОВА: анестезия, хирургия, улучшенное восстановление после операции, качество жизни, опросник

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Introduction

Assessing the quality of recovery after surgery is a valuable indicator of patient's well-being in routine clinical practice, and is an important end-point in clinical research. Currently, patient self-reported questionnaires are used to assess the quality of recovery after surgery elsewhere [1]. Among the tools available for assessment of quality of recovery after anesthesia, the Quality of Recovery 40-item questionnaire (QoR-40) is noteworthy. The structure of this questionnaire includes

various aspects related to the patient's recovery after anesthesia. There are data on the use of the questionnaire QoR-40 and its short form — Quality of Recovery 15-item questionnaire (QoR-15) in different studies in a number of European countries, Japan and USA [2-5]. The questionnaire QoR-40 consists of 40 items, which are distributed in five dimensions, reflecting different aspects of the patient's recovery after anesthesia during surgery — physical comfort, emotions, physical independence, psychological support and pain [6]. Later, on the basis of the questionnaire QoR-40, its short form QoR-15, consisting of 15 items, was developed [7]. Its use is an alternative to QoR-40 and is advisable in the following situations — in case of time shortages, in presence of a large flow of patients, in cases where rapid expertise of the quality of recovery after anesthesia is necessary [8]. Due to the importance of assessing the quality of recovery after anesthesia in surgical patients, it sounds of importance to develop Russian-language versions of the QoR-40 questionnaire and its short form QoR-15 for their further application in research and clinical practice. The language version of the questionnaire is eligible for use in international research only if the adaptation procedure is performed in accordance with international standards [9-11].

The goal of this study was the linguistic and cultural adaptation of the Russian-language versions of the QoR-40 questionnaire and its short form — QoR-15, as well as their testing in the surgical patient population with the aim of further using these tools in clinical practice and research.

Materials and Methods

The study was approved by the Biomedical Ethics Committee of the Clinic of High Medical Technologies n. a. N.I. Pirogov of St. Petersburg State University Hospital (protocol No. 03/21 of March 18, 2021). The study was carried out from February 2021 till November 2021 on the basis of the Endocrine Surgery Department of the Clinic of High Medical Technologies n. a. N.I. Pirogov. Adult patients with thyroid pathology or hyperparathyroidism who had indications for surgical treatment were enrolled into the study if they were able to complete questionnaires. The enrollment was approved after signing the informed consent.

At the first stage of the study, after obtaining permission from the author of the questionnaires, the procedure of linguistic and cultural adaptation of the Russian versions of the QoR-40 questionnaire and its short form QoR-15 was carried out. Linguistic and cultural adaptation of instruments was performed on the basis of the standard algorithm in accordance with modern international recommendations and it was a multi-step procedure. To confirm the correctness of translation and adaptation, as well as to verify the compliance of the developed version with cultural and linguistic characteristics of the patient population in Russia, the Russian versions of QoR-40 and QoR-15 were tested via individual interviews with patients who were indicated to surgery.

Methods for assessing the psychometric properties of the QoR-40 questionnaire and its short form QoR-15

The methods chosen for validation of the Russian versions of QoR-40 and QoR-15 questionnaires were based on the approaches used to testing the psychometric properties of the original versions of the tools [6, 7]. Validation included assessment of reliability, validity, and responsiveness. Reliability analysis was carried out by two methods: 1) evaluation of the reproducibility of the questionnaires by the test-retest method, 2) assessment of internal consistency based on the calculation of the Cronbach's alpha coefficient (α). Convergent validity analysis was performed by estimating the correlations between the Total score of questionnaires and "external criterion" one day after surgery. As an "external criterion," the global recovery rate after surgery (subjective feeling of the patient's well-being after anesthesia) was considered using visual-analogue scale (VAS), from 0 to 100 points. Discriminant validity was assessed by comparing the Total scores of both questionnaires post-surgery in two patient groups — the first one with global recovery rate by VAS < 70 points (poor recovery) and the second one with global recovery rate by VAS ≥ 70 points (good recovery) [7]. To determine the responsiveness of the questionnaires, changes in the Total scores of the questionnaires one day after surgery compared to its pre-surgery value were analyzed.

Statistical analysis. Descriptive statistics are presented as numbers, means, standard deviations, medians, interquartile ranges, ranges and percentages. When selecting the criterion for evaluation of statistical significance, the nature of data distribution was taken into account. A non-parametric Mann-Whitney test was used when comparing the independent groups of patients. When comparing the changes of variables in time, a non-parametric Wilcoxon test was used for dependent groups. A Spearman rank correlation was used to assess the association between the variables, and a r^i coefficient was calculated to characterize the intra-class correlations. All tests were two-sided, differences between the compared groups were found to be statistically significant at the level of $p < 0.05$. Statistical analysis was performed using IBM SPSS 23.0 software.

Results

Linguistic and cultural adaptation and testing of the QoR-40 questionnaire and its short form QoR-15

Forward translation of questionnaires was performed independently by two translators — native speakers of the Russian language who had experience in translating special medical literature. As a result, two versions of forward translations of QoR-40 and its short form — QoR-15 were devel-

oped. When creating preliminary test versions of the questionnaires in Russian, the optimal phrase formulations were chosen, which were proposed by translators taking into account the cultural and ethnolinguistic characteristics of the population. Preliminary test versions were approved by the expert committee, further harmonization of translations was carried out, a discussion of principle differences identified between the original versions and the back translations was performed, and a test version of each of the tools in Russian was approved.

The Russian versions of the QoR-40 questionnaire and its short form QoR-15 were tested during interview procedure with patient's participation. Five patients, who underwent surgery a day before the interview, participated in the testing of QoR-40 and another five patients — in testing of QoR-15.

Average time for completing the QoR-40 questionnaire was 6 minutes (range, 1–10), for QoR-15 questionnaire — 4 minutes (range, 3–5). Overall, patients had a positive impression regarding the questionnaires; all the patients noted that questionnaires are easy to read and understand; the tolls were convenient to assess the quality of recovery after anesthesia. The external validity coefficient (from 0 to 1) was 0.96 scores for QoR-40, and 0.94 scores for QoR-15. The data obtained during testing procedure confirm satisfactory results of linguistic and cultural adaptation of both tools.

Testing of the QoR-40 questionnaire and its short form QoR -15

In total 144 patients with thyroid pathology or hyperparathyroidism who had indications for surgery took part in psychometric testing of QoR-40 and QoR-15 questionnaires. The first group (n = 74) included patients who participated in the testing of the Russian version of QoR-40 (mean age, 49.0 ± 13.6 years, 89.2 % — females). The second group (n = 70) involved patients who participated in the testing of QoR-15 questionnaire (mean age, 48.9 ± 13.5 years, 77.1 % — females). Clinical characteristics of the groups is presented in the Table 1.

The testing of both questionnaires demonstrated that in general, the questionnaires were understandable and did not cause difficulties during completing by the patients. Questionnaires were fully completed in 100 %. The results show a high data quality and a good completeness of questionnaires. The results of assessment of psychometric properties of Russian versions of the QoR-40 questionnaires and QoR-15 are presented below.

Reliability of the Russian version of the questionnaire QoR-40 and its short form QoR-15

The Cronbach's α coefficient value for the QoR-40 questionnaire was 0.92, it characterizes high internal consistency of the instrument. For dimensions of the QoR-40 acceptable values of Cronbach's α coefficient were obtained:

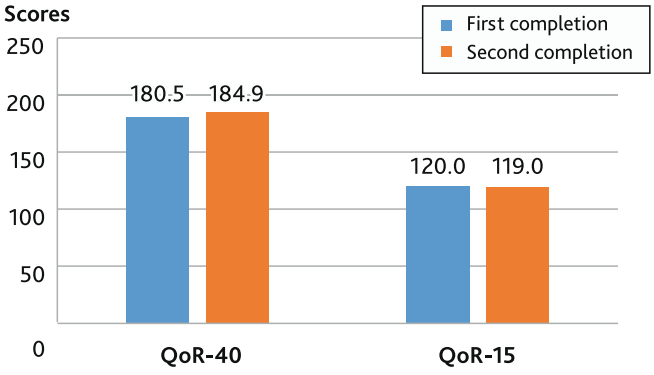

Fig. 1. Mean values of QoR-40 and QoR-15 Total scores at the first completion of questionnaires by patients after surgery and in an hour; Wilcoxon criterion, $p > 0.05$

physical comfort, α = 0.77, emotions, α = 0.83, physical independence, α = 0.73, psychological support, α = 0.75, pain, α = 0.74. For the QoR-15 questionnaire, the Cronbach's α coefficient value was 0.89. The findings indicate that the QoR-15 questionnaire is characterized by good internal consistency. The test-retest reliability analysis was performed in the group of patients who completed the questionnaires after surgery twice with an interval of an hour between completions (Fig. 1).

As can be seen on the figure, the differences in the Total score for QoR-40 (180.5 versus 184.9) and its short form QoR-15 (120.0 versus 119.0) between the first and second completions of the questionnaires after surgery are not significant ($p > 0.05$). Thus, the QoR-40 questionnaire and its short form QoR-15 are characterized by high reproducibility.

Based on the assessment of internal consistency and reproducibility, the satisfactory reliability of the Russian versions of the QoR-40 questionnaire and its short form QoR-15 is shown.

Validity of the Russian version of the QoR-40 questionnaire and its short form QoR-15

Convergent validity of the tools was estimated using calculation of Spearman's correlation coefficient between the Total scores of the questionnaires and global recovery by VAS. For the QoR-40 Spearman's correlation coefficient corresponded to 0.672 ($p < 0.001$), for the QoR-15 — 0.669 ($p < 0.001$), and thereby demonstrates significant moderate positive association between quality of recovery according to Total score of both questionnaires and Global recovery by VAS. These data confirm the good convergent validity of the QoR-40 questionnaire and its short form QoR-15 and indicate that both tools allow a correct assessment of patient's recovery after surgery.

To assess discriminant validity, the Total scores of the questionnaires were compared in patient groups with high (≥ 70 by VAS) and low (< 70 by VAS) global recovery after surgery (Fig. 2).

Table 1. Clinical characteristics of the sample

Characteristics	First group	Second group
Primary diagnosis, *n* (%)		
Unspecified thyroid tumor	37 (50.0)	40 (57.1)
Thyroid carcinoma	10 (13.5)	13 (18.6)
Diffuse toxic goiter	10 (13.5)	7 (10.0)
Multi-node non-toxic goiter	4 (5.4)	4 (5.7)
Hyperparathyreoidizm	13 (17.6)	6 (8.6)
Comorbidities, *n* (%)		
Arterial hypertension	30 (40.5)	28 (40.0)
Coronary artery disease	3 (4.1)	3 (4.3)
Postinfarction cardiosclerosis	0	1 (1.4)
Arrhythmia	3 (4.1)	2 (2.9)
Chronic heart failure	12 (16.2)	18 (25.8)
Chronic obstructive pulmonary disease	2 (2.7)	0
Bronchial asthma	0	1 (1.4)
Chronic gastritis, duodenitis	3 (4.1)	2 (2.9)
Cholelithiasis	3 (4.1)	0
Urolithiasis	5 (6.8)	2 (2.9)
Chronic pyelonephritis	4 (5.4)	4 (5.7)
Diabetes mellitus	6 (8.1)	1 (1.4)
Obesity	3 (4.1)	1 (1.4)
Anemia	2 (2.7)	0
Viral hepatitis chronic	2 (2.7)	1 (1.4)
Acute cerebrovascular accident/transient Ischemic attack in anamnesis	2 (2.7)	1 (1.4)
Chronic venous insufficiency	4 (5.4)	7 (10.0)
Patient's physical status according to ASA, *n* (%)		
I	2 (2.7)	4 (5.7)
II	68 (91.8)	61 (87.1)
III	4 (5.4)	5 (7.1)
Type of surgery, *n* (%)		
Thyroidectomy	17 (23.0)	12 (17.1)
Hemithyroidectomy	43 (58.0)	45 (64.3)
Isthmus or thyroid lobe resection	4 (5.4)	3 (4.3)
Cervical lymphadenectomy	1 (1.4)	0
Parathyreoidectomy	9 (12.2)	10 (14.3)
Duration of anesthesia (median, IQR), min	75 (58–90)	70 (55–85)
Duration of time after surgery during completing of the questionnaire, (median, IQR), hours	20 (18–21)	19 (17–21)

ASA — physical status of patients according to classification of American Society of Anesthesiologists.

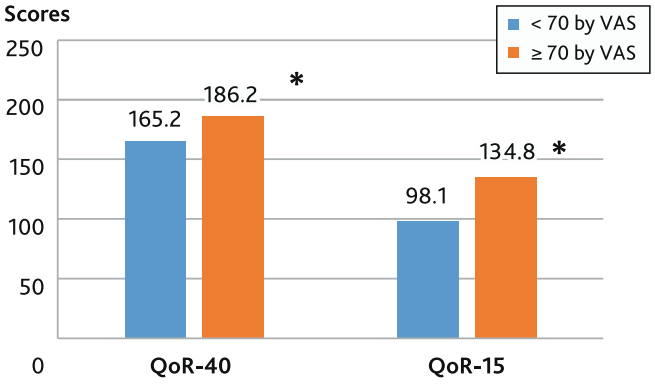

Fig. 2. Mean values of QoR-40 and QoR-15 Total scores in patients with high (VAS ≥70) and low (VAS<70) quality of recovery after surgery

* Mann—Whitney test, $p < 0.001$.

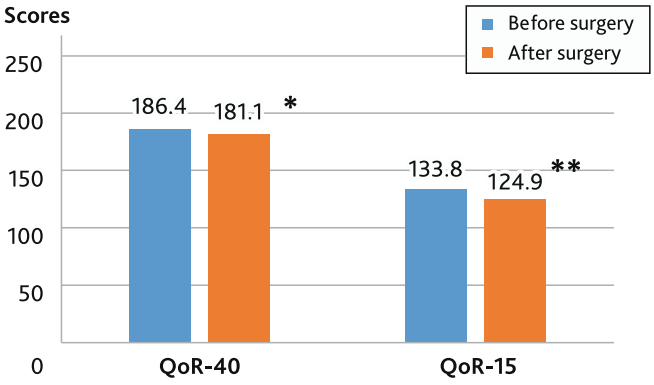

Fig. 3. Mean values of QoR-40 and QoR-15 Total scores before surgery and one day after surgery

* Wilcoxon criterion, $p < 0.001$.

** Wilcoxon criterion, $p = 0.015$.

In the group of patients who had low global recovery (< 70 according to VAS), the Total score for both questionnaires QoR-40 and QoR-15 was significantly less than in patients with high global recovery (≥ 70 by VAS) — 165.2 versus 186.2 and 98.1 versus 134.8, respectively ($p < 0.001$). These data point to good discriminant validity of both instruments and confirm that these questionnaires are able to detect differences in patient recovery after surgery.

Responsiveness of the Russian version of the QoR-40 questionnaire and its short form QoR-15

Sensitivity analyses was made in terms of changes in the Total score of QoR-40 and QoR-15 one day after surgery (responsiveness) as compared to its preoperative value (Fig. 3).

One day after surgery, a statistically significant decrease in the Total score for questionnaires was noted as compared to its preoperative value: 186.4 versus 181.1 for QoR-40 ($p < 0.001$), and 133.8 versus 124.9 for QoR-15 ($p = 0.015$). These data confirm good responsiveness of the questionnaires — both tools are sensitive enough to detect changes in patient's well-being after surgery. Thus, the Russian versions of the QoR-40 questionnaire and its short form QoR-15 are sensitive to changes of patient's health after surgery, thereby both may be considered as informative to measure patient's postoperative recovery.

Discussion

Currently, for assessing postoperative complications and patient's recovery after anesthesia, an integrated approach is recognized by international medical community as optimal, including the use of information obtained directly from the patient, in addition to objective clinical indicators [1]. A number of patient self-reported questionnaires are available for this purpose. Among them the Quality of Recovery 40-item questionnaire (QoR-40) and its short QoR-15 form seem to be the most promising. The use of these questionnaires allows to obtain information about disorders related to anesthesia taking into account patient's opinion and may contribute to optimize anesthesiological support and perioperative care, to prevent complications and to provide patient's accelerated recovery after surgery [4, 12, 13]. During this study, Russian versions of QoR-40 and QoR-15 questionnaires were developed and tested. Based on the results of the testing, the feasibility and usefulness of both instruments were demonstrated in the group of surgical patients. The results of the reliability and validity assessment are comparable to the data obtained for the original versions for both tools [6, 7] and point to high accuracy and validity of the information obtained. The responsiveness of the questionnaires in terms of sensitivity to detect changes in the patient's health condition due to anesthesia has also been demonstrated.

The results of this study are relevant and timely, as these questionnaires are currently used in local and international studies conducted in the Russian Federation. As a fact, the QoR-40 is being used to assess the primary end-point in the single-center research study IOLANT (Intravenous Or topical Lidocaine And Neuromonitoring in Thyroid surgery, NCT04574947), and the QoR-15 is being used to assess secondary end-point within the international multicenter research study MOPED (Management and Outcomes of Perioperative Care Among European Diabetic Patients, NCT04511312).

Among limitations of this study it is worth to mention that population of patients included has limited surgical disorders — thyroid pathology, or hyperparathyroidism. However, in our opinion, this limitation does not reduce the usefulness of questionnaires, and they may be recommended for application among patients with other surgical conditions.

Thus, the results of this study suggest that Russian versions of the QoR-40 questionnaire and its short form QoR-15 were successfully tested in the surgical patient population in Russia. Both tools are reliable, valid and responsive to assess the quality of recovery in patients after anesthesia, and can be used in clinical practice and research in national surgery/anesthesiology.

Conclusion

As a result of multi-step procedure of translation, cultural adaptation and validation the Russian language versions of the QoR-40 questionnaire as well as its' short form QoR-15 aimed to assess quality of recovery in patients after anesthesia were developed. It has been shown that Russian versions of the QoR-40 and QoR-15 are reliable, valid and responsive tools for assessing the quality of postoperative patients' recovery. The use of these tools in practical surgery and anesthesiology can contribute to improving control of postoperative complications and their timely correction.

The use of information obtained directly from the patient on the basis of the QoR-40 questionnaire and its short form QoR-15 contributes to patient-centered approach in assessment of the patient's health condition after surgery. With the use of these tools measurement of the patient's recovery at early and long-term period after surgical treatment may be done and it could be considered as part of comprehensive assessment of the effectiveness and safety of various drugs used for the anesthesia.

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Author contribution. All authors according to the ICMJE criteria participated in the development of the concept of the article, obtaining and analyzing factual data, writing and editing the text of the article, checking and approving the text of the article.

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Appendix 1

Quality of recovery 40-item questionnaire (QoR-40)

Date: _ _ / _ _ _ / _

Patient Survey (QoR-40)

Name: _____ study #: _____ Hospital UR #: _____

PART A

How have you been feeling in the last 24 hours?

(1 to 5, where : 1 = None of the time [poor] and 5 = All of the time [excellent])

For example: If you have been able to breathe easily all of the time, you should indicate this by circling the response 5 = ***all of the time*** as shown below:

	None of the time	Some of the time	Usually	Most of the time	All of the time
Able to breathe easily	1	2	3	4	(5)

	None of the time	Some of the time	Usually	Most of the time	All of the time
Comfort					
Able to breathe easily	1	2	3	4	5
Have had a good sleep	1	2	3	4	5
Been able to enjoy food	1	2	3	4	5
Feel rested	1	2	3	4	5
Emotions					
Having a feeling of general well-being	1	2	3	4	5
Feeling in control	1	2	3	4	5
Feeling comfortable	1	2	3	4	5

How have you been feeling in the last 24 hours?

(1 to 5, where : 1 = None of the time and 5 = All of the time)

	None of the time	Some of the time	Usually	Most of the time	All of the time
Physical Independence					
Have normal speech	1	2	3	4	5

Continuation of the form

Able to wash, brush teeth or shave	1	2	3	4	5
Able to look after your own appearance	1	2	3	4	5
Able to write	1	2	3	4	5
Able to return to work or usual home activities	1	2	3	4	5
Patient Support					
Able to communicate with hospital staff (when in hospital)	1	2	3	4	5
Able to communicate with family or friends	1	2	3	4	5
Getting support from hospital doctors (when in hospital)	1	2	3	4	5
Getting support from hospital nurses (when in hospital)	1	2	3	4	5
Having support from family or friends	1	2	3	4	5
Able to understand instructions and advice	1	2	3	4	5

PART B

Have you had any of the following in the last 24 hours?

(5 to 1, where: 5 = None of the time [excellent] and 1 = All of the time [very poor])

	None of the time	**Some of the time**	**Usually**	**Most of the time**	**All of the time**
Comfort					
Nausea	5	4	3	2	1
Vomiting	5	4	3	2	1
Dry-retching	5	4	3	2	1
Feeling restless	5	4	3	2	1
Shaking or twitching	5	4	3	2	1
Shivering	5	4	3	2	1
Feeling too cold	5	4	3	2	1

End of the form

Feeling dizzy	5	4	3	2	1
Emotions					
Had bad dreams	5	4	3	2	1
Feeling anxious	5	4	3	2	1
Feeling angry	5	4	3	2	1
Feeling depressed	5	4	3	2	1
Feeling alone	5	4	3	2	1
Had difficulty falling asleep	5	4	3	2	1

Have you had any of the following in the last 24 hours?

(5 to 1, where: 5 = None of the time [excellent] and 1 = All of the time [very poor])

	None of the time	Some of the time	Usually	Most of the time	All of the time
Patient Support					
Feeling confused	5	4	3	2	1
Pain					
Moderate pain	5	4	3	2	1
Severe pain	5	4	3	2	1
Headache	5	4	3	2	1
Muscle pains	5	4	3	2	1
Backache	5	4	3	2	1
Sore throat	5	4	3	2	1
Sore mouth	5	4	3	2	1

Thank you for your assistance.

Please check that all questions have been answered.

If you have any questions, please contact: _____through the hospital's switchboard.

Appendix 2

Quality of recovery 15-item questionnaire (QoR-15)

QoR-15 Patient Survey

Date: _ _ / _ _ / _ _ Study #: _____

Preoperative ☐ Postoperative ☐

PART A

How have you been feeling in the last 24 hours?

(0 to 10, where: 0 = none of the time [poor] and 10 = all of the time [excellent])

1.	Able to breathe easily	None of the time	0	1	2	3	4	5	6	7	8	9	10	All of the time
2.	Been able to enjoy food	None of the time	0	1	2	3	4	5	6	7	8	9	10	All of the time
3.	Feeling rested	None of the time	0	1	2	3	4	5	6	7	8	9	10	All of the time
4.	Have had a good sleep	None of the time	0	1	2	3	4	5	6	7	8	9	10	All of the time
5.	Able to look after personal toilet and hygiene unaided	None of the time	0	1	2	3	4	5	6	7	8	9	10	All of the time
6.	Able to communicate with family or friends	None of the time	0	1	2	3	4	5	6	7	8	9	10	All of the time
7.	Getting support from hospital doctors and nurses	None of the time	0	1	2	3	4	5	6	7	8	9	10	All of the time
8.	Able to return to work or usual home activities	None of the time	0	1	2	3	4	5	6	7	8	9	10	All of the time
9.	Feeling comfortable and in control	None of the time	0	1	2	3	4	5	6	7	8	9	10	All of the time
10.	Having a feeling of general well-being	None of the time	0	1	2	3	4	5	6	7	8	9	10	All of the time

PART B

Have you had any of the following in the last 24 hours?

(10 to 0, where: 10 = none of the time [excellent] and 0 = all of the time [poor])

11.	Moderate pain	None of the time	10	9	8	7	6	5	4	3	2	1	0	All of the time
12.	Severe pain	None of the time	10	9	8	7	6	5	4	3	2	1	0	All of the time
13.	Nausea or vomiting	None of the time	10	9	8	7	6	5	4	3	2	1	0	All of the time
14.	Feeling worried or anxious	None of the time	10	9	8	7	6	5	4	3	2	1	0	All of the time
15.	Feeling sad or depressed	None of the time	10	9	8	7	6	5	4	3	2	1	0	All of the time