



Pre- and postoperative evaluation of the effect of reconstructive surgery on patient quality of life and self-esteem: a prospective study of 52 patients

Avaliação pré e pós-operatória do efeito da cirurgia reparadora na qualidade de vida e da autoestima do paciente: um estudo prospectivo envolvendo 52 pacientes

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■ ABSTRACT

Introduction: Benign and malignant skin lesions can affect patients' quality of life and self-esteem; thus, reconstructive plastic surgery is important for these individuals. The objective is to assess the effect of reconstructive plastic surgery on the quality of life (QoL) and self-esteem in patients with benign or malignant skin lesions. **Methods:** This quasi-experimental "pre-post study" measured QoL using the 36-Item Short Form Health Survey (SF-36) questionnaire. For the measure of self-esteem, the Rosenberg Self-Esteem Scale was used. The changes in scores of both instruments were measured before and after surgery, and the statistical significance of the difference was evaluated using a paired sample t test. The proportion of individuals with an increased QoL score and self-esteem according to sociodemographic variables, lesion or disease characteristics, surgical treatment classification, and stressful events was measured, whereas the statistical significance was assessed using the chi-square test.

Results: Fifty-two patients were interviewed. After the surgical intervention, significant improvement in QoL score in most SF-36 domains (emotional, physical, social, pain, general health, and mental health aspects) and improvement in the Rosenberg Self-Esteem Scale score were noted. The factors associated with a higher probability of improvements in QoL and self-esteem after surgery were age ≥ 60 years, white skin color, higher education level, occurrence of a stressful event, and malignant neoplasia.

Conclusions: Reconstructive surgery positively affected several domains of QoL and self-esteem, showing other improvements in patient health beyond its technical and clinical benefits.

Keywords: Quality of life; Self-concept; Surgical reconstructive procedures; Surveys and questionnaires.

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■ RESUMO

Introdução: As lesões de pele benignas e malignas podem afetar a qualidade de vida (QV) e a autoestima dos pacientes, tendo a cirurgia plástica reparadora importante papel nesses indivíduos. O objetivo é estudar o efeito da cirurgia plástica reparadora sobre a QV e a autoestima de pacientes. **Métodos:** Foi realizado um estudo quase-experimental (antes e depois). A QV foi medida pelo questionário SF-36. Para a medida da autoestima, foi utilizada a escala de autoestima de Rosenberg. Alterações nos escores de ambos os instrumentos foram medidas antes e após o procedimento cirúrgico e a significância estatística da diferença foi avaliada pelo teste t. A proporção de indivíduos com aumento de escore de QV e autoestima, segundo as categorias de variáveis sociodemográficas, características da lesão ou da doença, classificação do tratamento cirúrgico e eventos estressantes, foi medida, e a significância estatística foi avaliada pelo teste do Qui-quadrado. **Resultados:** Foram entrevistados 52 pacientes. Após a intervenção cirúrgica, houve melhora significativa no escore de QV na maioria dos domínios de SF-36 (aspectos emocionais, físicos, sociais, dor, estado geral de saúde e saúde mental) e melhora na escala de autoestima de Rosenberg. Os fatores associados a maior probabilidade de melhora na QV e autoestima após a cirurgia foram idade igual ou superior a 60 anos, cor de pele branca, maior escolaridade, ocorrência de evento estressante e tipo maligno de neoplasia. **Conclusões:** A cirurgia reparadora teve um impacto positivo em vários domínios de QV e autoestima, mostrando outras melhorias na saúde do paciente, além dos benefícios clínicos.

Descritores: Qualidade de vida; Autoimagem; Procedimentos cirúrgicos reconstrutivos; Inquéritos e questionários.

INTRODUCTION

In addition to having a significant impact on morbidity, benign and malignant skin lesions can decrease productivity, cause social exclusion, and affect an individual's quality of life (QoL)^{1,2}. Among skin lesions, skin cancer has shown an increasing incidence in the past three decades, with it being the most frequently observed neoplasm and affecting approximately 0.06% of the population in 2015³.

The most common sites of skin neoplasms are the head and neck regions, accounting for up to 80% of non-melanoma skin cancer cases⁴. The consequences of treatment, especially in this region, may include physical and psychological disorders^{5,6} because sequelae and scars resulting from surgical treatment can cause different types of facial deformities and physical changes⁷.

The burn sequela is another type of skin injury that triggers serious physical, psychological, and financial problems for patient, families, and society⁸. Even when the causes of psychological discomfort are

minor deformities or minor aesthetic failures, they may cause inferiority feeling or emotional conflict^{9,10}.

These patients are often referenced for surgery services in order to correct anatomical and functional defects. In this condition, the concept of healing should not only be based on biological recovery, but should also include well-being, psychic survival, self-esteem and QoL^{11,12}.

According to the World Health Organization, "quality of life is the perception of the individual, of his position in life, in the context of the culture and value system in which he lives and in relation to his goals, expectations, standards, and interests"⁹, which is related to health promotion and disease prevention, treatment, and rehabilitation to improve patients' well-being¹⁰⁻¹². Self-esteem, in turn, consists of the positive feelings of the individual about oneself. This is subjective because it determines how the individual thinks and behaves, and their measures are based on individual and social experiences¹³.

Several studies have evaluated the impact of cosmetic surgery on QoL or self-esteem after procedu-

res such as blepharoplasty, rhinoplasty, and rhytidectomy¹³⁻¹⁵, and further studies may examine the impact of restorative surgery on patients described here.

OBJECTIVE

The present study investigated the effect of reconstructive plastic surgery on QoL and self-esteem in patients with benign or malignant skin lesions who were referred to the Plastic Surgery Service of a university hospital in the South of Brazil for surgical procedures.

METHODS

This non-randomized, open-label clinical trial examined patients with indications for repair surgery and evaluated the changes in QoL and self-esteem between the pre- and postoperative periods.

Patients aged ≥ 18 years with benign or malignant skin lesions classified by the International Statistical Classification of Diseases and Related Health Problems 10 with or without deeper planes and indications for surgical repair procedures were included in the study. These patients were referred from other services to the outpatient surgery clinic. The exclusion criterion was the lack of intellectual capacity to respond to the questionnaire.

The patients underwent procedures in the surgical center in the presence of a team consisting of the surgeon, surgical assistant, medical resident or medical student, and anesthesiologist. After the procedure, patients were contacted by telephone to remind them to return for follow-up appointments to reduce the risk of losses. The indication for the surgical procedure was identified by two surgeons independently; in cases of disagreement, the decision was made by consensus. To diagnose the patients' lesions, clinical examinations, transoperative examinations, and histopathological studies were used.

The outcomes of the study were patient QoL and self-esteem. For the QoL evaluation, the 36-Item Short Form Health Survey (SF-36) questionnaire was used. The SF-36 is easy to use, validated in Brazil, and frequently used to assess this topic^{16,17}.

The SF-36 is a multidimensional questionnaire consisting of 36 items grouped into 8 components or domains: functional capacity, limitation by physical aspects, pain, general health, vitality, social aspects, limitation by emotional aspects, and mental health. The domains are calculated according to formulas already established by the questionnaire itself, and the results are transformed into a scale of 0–100, where zero is considered the worst state and 100 is the best^{18,19}.

The Rosenberg Self-Esteem Scale (RAS), a quick and easy-to-use research instrument²⁰, was used to

assess patient self-esteem. In the present study, the Brazilian version of the EAR was used, as it has been validated and adapted to the needs and characteristics of the country's population²⁰.

The EAR is a 10-item questionnaire with contents related to the feelings of respect and acceptance of the individual in relation to oneself, and each question is answered on a scale of totally agree, agree, disagree, and totally disagree (4, 3, 2, and 1 point(s), respectively). The higher the score, the higher the self-esteem level²¹.

QoL and self-esteem were assessed, and patients' baseline characteristics were recorded at the preoperative visit. The surgical procedure was performed a mean 4 weeks later, at which time information was collected about the technique used and the lesion's characteristics. At the postoperative visit a mean 8 weeks after the first visit, the QoL and self-esteem questionnaire were applied for the second time and data on the lesion's histopathological diagnosis were collected.

The sample was calculated using the expected difference between the different domains of the QoL questionnaire and the differences in the self-esteem scores. The estimated values were obtained from an earlier study²². A 95% confidence level and 95% statistical power were used in all calculations. For each of the QoL domains, the required sample size calculation was performed considering the mean and standard deviation (SD) in the preoperative and postoperative periods.

The mental health domain required a larger sample size. Pre- and postoperative scores for this domain were 55 (DP 8) and 65 (DP 13), respectively. The calculated sample size was 52 patients, considering 10% for losses and 50% for confounding factors. Calculation of the sample for RAS considered a mean and DP before and after 20 (DP 5) and 28 (DP 6), respectively. The n necessary for this outcome was 26 individuals. Thus, the sample size required for the two outcomes was 52 patients.

The independent variables studied included:

- a) Sociodemographic: age, skin color reported by the patient (white, black, or yellow), sex, marital status, literacy, education level, per capita family income classified in quartiles, activity performed in the month prior to the interview;
- b) Lesion or disease characteristics: area size, clinical and histopathological diagnosis, presence or absence of systemic neoplastic disease, and lesion topography defined as the face (nose, ear, lip, periorbital, frontal malar), cranial, cervical, trunk, upper limbs, lower limbs, or genital;
- c) Classification of surgical treatment: type, resection with primary closure, graft

preparation, resection followed by local flap, and use of tissue expanders;

- d) Stress-producing life events defined as changes in the environment occurring up to 12 months prior to the evaluation, the magnitude of which required a degree of social or psychological adaptation by the patient: severe illness, death of close relatives, hospitalization, separation/divorce, forced housing change, severe financial problems, robbery, or robbery with violence²³.

A database was built in the Epidata 3.1 program. The data were typed in duplicate by two independent typists. Subsequently, the bank was cleaned by the identification of errors of amplitude or consistency. For the data analysis, the bank was translated into a statistical program (Stata 13.1). A descriptive analysis was performed of the studied sample.

SF-36 scores by domain and RAS scores were calculated for the first and second queries. The difference in scores was statistically analyzed using Student's *t*-test for paired samples. Subsequently, the differences in the proportion of individuals in whom their self-esteem and QoL scores in each category were improved were analyzed using the chi-square test. In all analyses, a *p* value of <0.05 was used for a two-tailed test.

The project followed the guidelines of Resolution No. 466 (December 12, 2012) and was approved by the Research Ethics Committee in the Health Area of the Federal University of Rio Grande. All patients signed an informed consent form to confirm that they were willing to voluntarily participate in the study.

RESULTS

A total of 52 patients were selected for and participated in the study; there were no losses. The mean time between the first and second application of the questionnaire was 63.08 days (SD, 2.51; minimum, 58; maximum, 67). The data collection period was from June to October 2016.

The mean patient age was 51.69 (SD, 24.12; range, 19-90) years, with the highest number of patients being aged ≥ 60 years, female, white, unmarried, and literate with a low education level (40% with less than 3 years of study). The first and last quartiles of monthly income were 458 and 1,300 reais, respectively. Four of the 10 patients were employed.

The mean skin lesion size was 6.8 cm²; 46.15% of lesions were malignant neoplasms, whereas 53.85% of lesions were benign. They were characterized as trauma or burns, pathological or unsightly scars, or benign neoplasms. Among the neoplasia types, 75% were basal cell carcinoma, 20.83% were squamous cell carcinoma, and 4.17% were melanoma. In 69.23% of the patients,

defect closure techniques included the use of surgical flaps or skin grafting. Most lesions were found on the face or scalp (67.31%) (Table 1).

As for SF-36 results (Table 2), the initial scores of the domains were mostly >70 points, and social aspect was the domain with the best score. After the surgical intervention, significant improvement was noted in the QoL life score for emotional aspects, limitation for physical aspects, social aspects, pain, general health, and mental health. The greatest increase was observed in the emotional aspects domain, followed by physical aspects and social aspects. The differences between the scores and the means are shown in Table 2.

In terms of RAS (Table 2), there was a significant difference of 6.79 points between the post- and preoperative periods.

The proportions of individuals with increased QoL and self-esteem after surgery differed among categories (Table 3). A higher education level significantly affected the physical, social, and emotional aspects. The proportion of patients aged ≥ 60 years for whom QoL increased was significantly higher than that of subjects aged < 60 years in the emotional aspects domain.

In the mental health field, a significantly higher proportion of white patients than black or yellow patients displayed an increased QoL. A significantly higher proportion of patients with malignant neoplasms than those with benign neoplasms presented an improved QoL in the pain domain.

A higher proportion of patients who had at least one stressful event than those who did not have a stressful event demonstrated statistically significant improvement in the mental health domain. There was no significant difference in self-esteem, and the proportions of increases in all categories were >86%.

DISCUSSION

The present study found a statistically significant difference in patients' QoL and self-esteem after reconstructive surgery.

With regard to QoL, improvement was seen in all domains, particularly in emotional aspects (improvement of 23.72), limitations in physical aspects (improvement of 17.29 points), and social aspects (improvement of 15.11 points), as well as changes in areas such as mental health (improvement of 5.85 points). Some studies have analyzed the effect of restorative surgery on QoL, and most studies show a significant association affecting several domains.

The change in the emotional aspect domain could be justified mainly by the psychic effect caused by the surgical correction of localized lesions, especially in

Table 1. Characteristics of patients who underwent reconstructive plastic surgery at a university hospital in South Brazil, Rio Grande, RS, 2016 (n = 52).

Characteristics	n	(%)
Age (years)		
0-19	5	(9.62)
20-39	13	(25)
40-49	11	(21.15)
≥60	23	(44.23)
Skin color		
White	46	(88.46)
Black or brown	6	(11.54)
Sex		
Female	30	(57.69)
Male	22	(42.31)
Marital status		
Unmarried	33	(63.43)
Married	19	(36.54)
Literacy		
Literate	51	(98.08)
Illiterate	1	(1.92)
Education		
Up to 3 rd grade	21	(40.38)
4 th to 7 th grade	19	(36.54)
8 th grade or more	12	(23.08)
Family income		
1 st quartile	458.00	(90.6)
2 nd quartile	644.00	(62.5)
3 rd quartile	900.00	(81.7)
4 th quartile	1,300.00	(293)
Employment status		
Unemployed	30	(57.69)
Employed	22	(42.31)
Lesion area (cm²)		
Lesion area (cm ²)	6.86	(5.62)
Lesion type		
Malignant neoplasm	24	(46.15)
Other	28	(53.85)
Neoplasm type		
Basal cell carcinoma	18	(75.00)
Squamous cell carcinoma	5	(20.83)
Melanoma	1	(4.17)
Location		
Face/scalp	35	(67.31)
Trunk/limbs/other	17	(32.69)
Type of surgical treatment		
Primary closure	16	(30.77)
Surgical graft or flap	36	(69.23)
Stress event		
None	44	(84.62)
At least 1	8	(15.38)

areas of exposure, such as the face, that cause constant concern, especially neoplasias, which generate fear, anxiety, and distress⁶.

This result is consistent with those of other studies that have evaluated this aspect. An article on the effect of QoL in repairing surgery performed specifically to correct venous ulcers through skin grafting also observed a positive impact on QoL similar to that obtained here, with improvement seen especially in the domains related to limitation by physical and emotional aspects²².

Another study comparing QoL between patients who did or did not undergo breast reconstruction after mastectomy observed that women who did not undergo breast reconstruction had greater emotional fragility and more greatly affected emotional domain of QoL²⁴. Another study detailing the effect of reductive mammoplasty on QoL identified that the surgical correction of breast hypertrophy improved QoL and the emotional aspect²⁵.

Finally, a subsequent German study of 72 patients with non-melanoma skin cancer who completed a QoL questionnaire found a moderate-to-strong impact on QoL, emotional aspects, functional capacity, and disease-related symptoms after surgery²⁶.

The increase in the physical aspect domain observed in our study could be explained by an improvement in function and impact on the psychological aspect of the patient, repercussion with improved disposition, decreased fatigue, and fatigue altering rest and sleep, leading to an improved capacity to perform personal and professional activities²⁷.

The improvement observed in the present study in terms of social aspects could also be justified by the physical improvement, appearance, and psychic questions of the individual, especially considering that he feels accepted by his group in social activities, the professional environment, and relationships with family and friends²⁸.

We identified an important improvement in the mental health domain, demonstrating the role of reconstruction. These data are consistent with those of another study of patients with head and neck neoplasia in which the impact on QoL was assessed after surgical treatment and where postoperative improvement was observed, especially in the mental health domain²⁹.

The important increase observed in the RAS scores after the interventions (6.79 points) demonstrates the relevant role of restorative surgery in the recovery function of the individual's self-esteem. The psychological impact due to improved function, as in the case of correction of cicatricial retractions caused by burns or the treatment of skin cancer, is also capable of improving self-esteem, i.e., this is not an exclusive benefit of cosmetic surgery²².

Table 2. Quality of life and self-esteem scores before and after reconstructive plastic surgery in Rio Grande, RS, Brazil, 2016 (n = 52).

Function	1 st measure		2 nd measure		Difference	P
	Mean	SD	Mean	SD		
36-Item Short Form Health Survey item						
Functional capacity	75.67	25.65	76.35	27.79	0.68	0.6
Limitations due to physical aspects	74.51	36.85	91.8	19.62	17.29	0.0004
Bodily pain	74.03	15.9	76.35	15.21	2.32	0.004
General health status	73.75	17.25	85.2	14.41	11.45	0.0001
Vitality	66.15	8.02	67.95	8.85	1.8	0.2
Social aspects	77.64	19.7	92.75	13.17	15.11	0.0001
Emotional aspects	67.3	40.95	91.02	23.90	23.72	0.0001
Mental health	76.53	9.98	82.38	9.57	5.85	0.0004
Rosenberg Self-Esteem Scale score	22.13	3.61	28.92	1.45	6.79	0.001

SD: Standard Deviation.

Table 3. Proportion of patients in whom QoL and self-esteem scores increased after reconstructive plastic surgery according to sociodemographic variables, neoplasm type, and stress event in Rio Grande, RS, Brazil, 2016 (n = 52).

Variable	Quality of life, % (n)								Self-esteem, % (n)
	Functional capacity	Physical aspect	Bodily pain	Health	Vitality	Social aspects	Emotional aspects	Mental health	
Sex									
Male	13.6 (3)	31.82 (7)	22.73 (5)	68.18 (15)	40.91 (9)	63.64 (14)	31.82 (7)	36.36 (8)	90.00 (27)
Female	6.7 (2)	26.67 (8)	13.33 (4)	60.00 (18)	33.33 (10)	56.67 (17)	43.33 (13)	46.67 (14)	90.91 (20)
Age ≥60 years									
Yes	17.4 (4)	34.78 (8)	21.74 (5)	73.91 (17)	34.78 (8)	73.91 (17)	56.52 (13) ^a	39.13 (9)	86.96 (20)
No	3.4 (1)	24.14 (7)	13.79 (4)	55.17 (16)	37.93 (11)	48.28 (14)	24.14 (7)	44.83 (13)	93.10 (27)
Color									
Black or yellow	0.0 (0)	0.00 (0)	16.67 (1)	50.00 (3)	16.67 (1)	33.33 (2)	16.67 (1)	0.00 (0) ^a	100.00 (6)
White	10.87 (5)	32.61 (15)	17.39 (8)	65.22 (30)	39.13 (18)	63.04 (29)	41.30 (19)	47.83 (22)	89.13 (41)
Education									
<3 years	4.76 (1)	9.52 (2) ^a	9.52 (2)	52.38 (11)	38.10 (8)	42.86 (9) ^a	14.29 (3) ^b	42.86 (9)	95.24 (20)
≥3 years	12.90 (4)	41.94 (13)	22.58 (7)	70.97 (22)	35.48 (11)	70.97 (22)	54.84 (17)	41.94 (13)	87.10 (27)
Married									
Yes	12.12 (4)	21.21 (7)	21.21 (7)	60.61 (13)	39.39 (13)	51.52 (17)	33.33 (11)	42.11 (8)	89.47 (17)
No	5.26 (1)	42.11 (8)	10.53 (2)	68.42 (20)	31.58 (6)	73.68 (14)	47.37 (9)	42.42 (14)	90.91 (30)
Malignant neoplasm									
Yes	16.67 (4)	37.50 (9)	29.17 (7) ^a	70.83 (17)	45.83 (11)	66.67 (16)	50.00 (12)	46.43 (13)	87.50 (27)
No	3.57 (1)	21.43 (6)	7.14 (2)	57.14 (16)	28.57 (8)	53.57 (15)	28.57 (8)	37.50 (9)	92.86 (26)
Stress event									
Yes	0.00 (0)	50.00 (15)	25.00 (2)	50.00 (4)	50.00 (4)	75.00 (6)	37.50 (3)	75.00 (6) ^a	87.50 (7)
No	11.36 (5)	25.00 (11)	15.91 (7)	65.91 (29)	34.09 (15)	56.82 (25)	38.64 (17)	36.36 (16)	90.91 (40)

^ap < 0.05; ^bp < 0.01. QoL: Quality of Life.

Other articles refer to the positive impact of purely esthetic plastic surgery on self-esteem and present results similar to those observed in the present study^{13-15,30,31}. A study to evaluate the effect of surgery for body contouring, including abdominoplasty and liposuction, demonstrated an important response in self-esteem with patients reporting feeling happier after surgery³⁰.

These patients undergoing cosmetic surgery have different psychological characteristics and perceptions of their own body than those who underwent restorative surgery, with higher stress levels in relation to appearance and different motivations for seeking treatment. Cases with a subjective indication of surgical intervention³².

The outlook for the future and type of recovery the individual may be subjected to may influence the patient's expectations of their disease and treatment³³. Although cosmetic surgery has a more specific objective of treating complaints of psychological origin and focuses on self-esteem, the restorative process has no such expectation regarding the aesthetic result; rather, it aims to improve function and treat the disease. This different psychological characteristic inherent to the patient's profile can generate the important QoL self-esteem scores in cases of repair component surgery³⁴.

Regarding the association between factors studied and QoL and self-esteem before and after the intervention, among the patients with increased scores after treatment, a significantly higher proportion of score increases was found in patients aged ≥ 60 years, who were white, with a higher education level, who suffered a stressful event, and who had malignant neoplasms.

The best QoL in older individuals was reported by Engel et al.³⁵; in a study of 990 patients, the younger the patient, the greater their concern about their health, financial situation, and future, negatively reflecting QoL. In another study, the QoL of women with breast cancer was evaluated for a period of 6 years after diagnosis, with 577 women aged between 30 and 61.6 years being interviewed. In older patients, QoL was higher in terms of social and emotional aspects³⁶, these results agree with those of the present study. However, in the physical aspects, younger women had better QoL results, which could be associated with a lower occurrence of comorbidities in this group.

We observed no sex-based differences in QoL or self-esteem improvement. Another study that analyzed the impact of cosmetic surgery on QoL and self-esteem found that women had a greater impact on QoL and self-esteem¹⁵. In another study conducted in patients with cutaneous melanoma, sex was not associated with changes in QoL score³⁷. These differences between

studies may be due to methodological differences, particularly a lack of statistical power.

A greater proportion of individuals with higher education levels displayed improvements in QoL in the physical, social, and emotional aspects. This finding can be explained by the fact that a higher education level is more closely associated with better job opportunities, salaries, and treatment adherence, leading to improved QoL³⁸. Other studies evaluated patients who underwent surgery for skin cancer and found no differences in QoL related to sociodemographic factors.^{26,29}

The presence of a malignant lesion was significantly associated with improvement in QoL in the pain domain after the surgical intervention. This may be explained by the greater susceptibility to pain perception among neoplastic patients³⁹, which would change with surgical intervention. It is known that cancer pain intensity varies and worsens according to tumor location and neoplasia stage⁴⁰.

Although the lesions found in our study patients were in the early stages, pain is subjective and each individual develops the symptom from their traumatic experiences and their perception influenced by various components, such as physical incapacity, social and family isolation, financial difficulties, and especially the fear of mutilation and death in cases of neoplasia⁴¹.

Stressful events affect QoL^{23,42-44}; in the present study, this was also observed in the mental health field. The fact that individuals with a stressful event present greater gain in this domain than individuals without the stressful event may be due to the fact that the correction of the health problem in this group would generate greater comfort and compensation. The absence of a control group not subjected to the intervention was this study's primary limitation.

However, its open non-randomized before-after design was the most adequate considering the difficulty obtaining a control group in the evaluation of surgical procedures. Another limitation was the lack of statistical power for some differences in the proportions of patients with QoL improvements. Studies with this design type and larger samples are required to adequately analyze some associations that were not significant.

CONCLUSION

Restorative surgery improves patients' QoL and self-esteem; in particular, it improves emotional, physical, and social aspects. This change facilitates the rehabilitation, and the improvement in patients' well-being contributes to their reintegration into family and society. Certain factors may contribute to the effect of surgery on QoL, particularly sociodemographic aspects. The practice of determining QoL and self-esteem in

patients who will undergo repair surgery can serve as an evaluation tool as part of a more integrated approach to managing surgical patients.

COLLABORATIONS

- VFST** Analysis and/or interpretation of data; statistical analyses; final approval of the manuscript; conception and design of the study; completion of surgeries and/or experiments; writing the manuscript or critical review of its contents.
- RAMS** Analysis and/or interpretation of data; statistical analyses; final approval of the manuscript; conception and design of the study; writing the manuscript or critical review of its contents.
- LZD** Final approval of the manuscript; completion of surgeries and/or experiments.
- SHLM** Writing the manuscript or critical review of its contents.

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