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Publications, by different surgical specialties, on patient-reported outcomes of oncoplastic surgery

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SUMMARY

OBJECTIVE: This study aimed to compare the publications authored by plastic surgeons with those from other specialties' surgeons on patient-reported outcomes of oncoplastic surgery.

METHODS: A review was carried out on the Medline database, emcompassing five years (2015-2020). Studies about partial breast reconstruction after conservative treatment, immediate or delayed, by any technique, which presented patient-reported outcomes, were included.

RESULTS: We found 292 articles, from which 142 met the eligibility criteria. Publications were stratified into groups 1 (plastic surgeons) and 2 (other surgical specialties), and also into groups A (only plastic surgeons), B (only other specialties) and C (both), and compared statistically. Most publications (60.6%) were attributed to specialties other than plastic surgery. Nineteen percent had only plastic surgeons as authors, 50% only other specialties' surgeons, and 31% had both. There was no difference between groups regarding the impact factor of the journals in any of the stratifications, and the majority was published in journals with impact factor ≤2. CONCLUSION: In the last years, surgeons from specialties other than plastic surgery published more about the results of the oncoplastic surgery reported by the patients. There was no statistical difference between the groups regarding the impact factor of the journals.

KEYWORDS: Breast neoplasms. Mastectomy, segmental. Surgery, plastic. Specialties, surgical. Journal impact factor.

INTRODUCTION

The treatment of breast cancer has undergone a dramatic change in the past decades, moving away from radical procedures toward breast conservation techniques in order to provide patients with greater aesthetic satisfaction[1]. The concept of partial mastectomy followed by postoperative radiation therapy, known as conservative breast treatment (CBT), is currently the standard treatment for early stage breast cancer[1-3].

However, CBT does not always achieve a good aesthetic outcome. About 30–40% of patients evolve with a visible aesthetic deformity and sequelae, which results in negative body image, self-esteem, and quality of life[3-7]. Oncoplastic surgery, which combines plastic surgery techniques with cancer resection, aims to achieve better aesthetic results, in addition to allowing the indication of CBT for larger tumors[5,7-12].

Oncoplastic surgery allows important goals to be achieved as follows: cancer safety combined with psychological well-being and good quality of life. Therefore, it is widely accepted and adopted currently in clinical practice[6-8,13,14].

The assessment of the oncological results of breast cancer treatment remains essential. However, the quality of health services provided has also been increasingly valued. Currently, there

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is a growing demand to assess how patients perceive treatment results[12,15]. The term "patient-reported outcomes" (PRO) was established to emphasize the value of assessing and quantifying results from a patient's perspective. PRO measures include satisfaction with results, functioning in daily life and quality of life, and have become highly valued and widely applied in supporting medical decisions[13,16].

There is a consensus that the use of oncoplastic techniques brings various advantages to patients[3,6-8,13,14,17-24]. Nevertheless, there are many controversies about specialties' (e.g., plastic surgery, mastology, cancer surgery, general surgery, and gynecology) ideal training and education to perform this type of procedure[2,18]. Therefore, this study was designed to compare the publications authored by plastic surgeons or surgeons of other specialties on PRO in oncoplastic surgery.

METHODS

This is an analytical study, with non-probabilistic sampling. A research was performed in the MEDLINE database through PubMed. The electronic search strategy included the terms ("oncoplastic" OR "partial breast reconstruction") AND ("aesthetic" OR "patient satisfaction" OR "quality of life"). It was limited to a period of five years.

Studies published between January 2015 and March 2020, related to oncoplastic surgery by any technique, either immediate or late, and assessed PRO as a main outcome (e.g., aesthetic results, quality of life, and satisfaction with results) were included. Articles published in languages other than English, Portuguese, or Spanish, studies on breast reconstruction after mastectomy and those whose primary outcome was the evaluation of cancer results (e.g., survival and relapses), and others were excluded.

Two authors independently read the abstracts of the retrieved references. Whenever there was a doubt, it was discussed with the senior author in a consensus meeting. All retrieved articles that met the eligibility criteria were included. Authors' data were checked, their affiliations were recorded, and the studies were stratified, according to specialty, into two groups: Group 1 (plastic surgery) and Group 2 (other surgical specialties).

When there were authors from different areas in the same study, including nonsurgical specialties, we considered the following criteria to identify the surgical specialty to attribute that paper:

1. affiliation of the corresponding author;
2. affiliation of the first author; and
3. affiliation of the last author.

To verify the integration of specialties in scientific production, we again stratified the studies into three groups: Group A (only plastic surgeons), Group B (other surgical specialties without any plastic surgeon), and Group C (plastic surgeons and surgeons of other specialties).

We also recorded and analyzed country and type of service (public/philanthropic or private assistance, university, or research center) where the study was conducted and the journal's impact factor.

The Bioestat© version 5.3 software (Instituto Mamirauá, Amazonas and Pará, Brazil) was used for statistical analysis. The significance level of 0.05 was established for all tests.

The Mann-Whitney U test and χ^2 test were applied to compare Groups 1 and 2 regarding numerical and categorical variables, respectively. Kruskal-Wallis test was applied to compare Groups A, B, and C regarding journals' impact factors. Whenever there was a statistical difference between these groups, the multiple comparison test was used to verify which group significantly differed from the others.

RESULTS

The electronic search retrieved 292 references. After reading the abstracts and agreeing on their relevance, 150 studies were excluded (Figure 1).

Thus, 142 publications were included. Most of them (60.6%) were performed by specialties other than plastic surgery. Most studies (57%), in both groups, were published in journals with impact factor £2. The overall median impact factor was 1.85 (Table 1). The majority (83%) of the publications were collected from university services (Figure 2), and the European surgeons authored 40.9% of the publications (Figure 3).

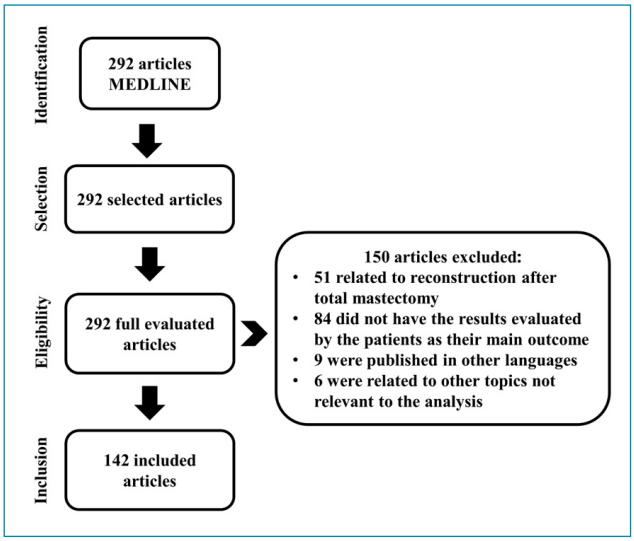


Figure 1. Flow diagram of articles.

Table 1. Comparison between Groups 1 (plastic surgeons) and 2 (other surgical specialties) regarding the impact factor of the journals.

	Group 1 (n=56)	Group 2 (n=86)	Group 1 × Group 2
Impact factor			Mann-Whitney U test
Range	0.000–5.586	0.000–35.386	p=0.756
Median±IQR	1.721±1.43	1.866±2.39	
Mean±SD	1.912±1.25	2.327±3.79	
	n (%)		χ^2 test
Impact factor ≤2	36 (64.3)	45 (52.3)	p=0.159
Impact factor >2	20 (35.7)	41 (47.7)	

IQR: interquartile range; SD: standard deviation.

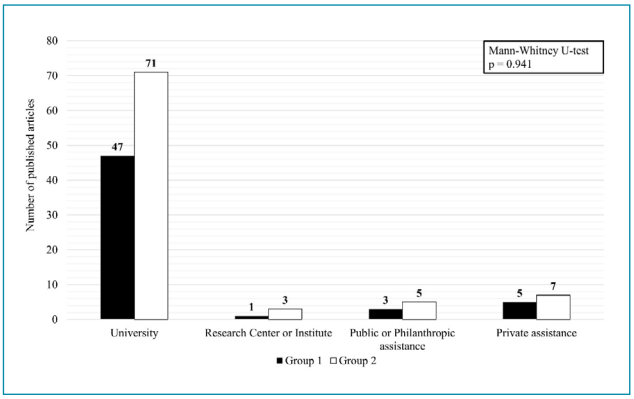
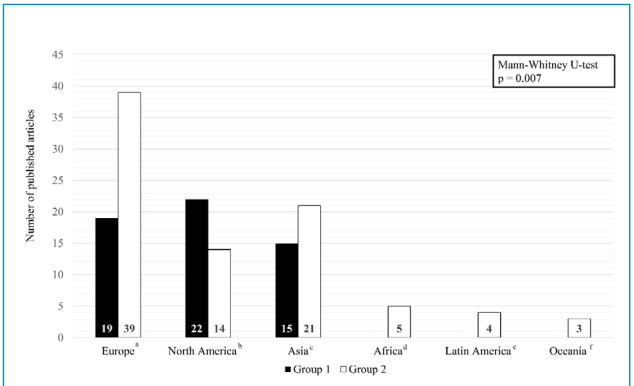


Figure 2. Comparison between Groups 1 (plastic surgeons) and 2 (other surgical specialties) regarding the type of service where the studies were conducted.



Germany, Belgium, Denmark, Scotland, Spain, Finland, France, Greece, Holland, Hungary, England, Italy, Iceland, Norway, Sweden, and Switzerland. [b]Canada, the United States, and Mexico. [c]China, South Korea, India, Japan, Singapore, Taiwan, and Turkey. [d]Egypt. [e]Brazil and Peru. [f]Australia.

Figure 3. Comparison between Groups 1 (plastic surgeons) and 2 (other surgical specialties) regarding the continent/country of origin of the study.

Stratification into Groups A, B, and C is shown in Table 2. Considering the publications that had the participation of at least one plastic surgeon (Group A+Group C), it was observed that they corresponded to 50% of the total (n=71). When compared with publications made by other specialties (without any plastic surgeon author), there was also no statistical difference regarding the impact factors (Mann-Whitney U test; p=0.670).

DISCUSSION

The overall survival of breast cancer patients increases annually. Consequently, there is a growing emphasis on cancer survival, with professional and accreditation organizations outlining guidelines for high-quality survival care; in other words, care that guarantees quality of life[17].

Plastic surgeons are pioneers and have leadership in the field of breast reconstruction, mastering volume replacement techniques through the use of autologous flaps or implants[14,24]. However, current surgical treatment for breast cancer requires that breast surgeons and plastic surgeons work together, using oncoplastic techniques to provide superior oncological and aesthetic results[19,25].

In the European model, various techniques of oncoplastic surgery, including both volume displacement and volume replacement techniques, are commonly practiced by general surgeons and breast surgeons[21,23,25]. The mainstream consideration is that, although the oncoplastic approach is more complicated and time-consuming than the conventional CBT approach, it provides better results and satisfaction rates for cancer. Therefore, breast surgeons must also be trained in plastic surgery or, at least, collaborate with plastic surgeons while performing oncoplastic surgery[6].

Our review of the publications on PRO in oncoplastic surgery confirmed the European leadership in the use of oncoplastic

Table 2. Comparison among Groups A (only plastic surgeons), B (only surgeons of other specialties), and C (both) regarding the impact factor of journals.

	Group A (n=27)	Group B (n=71)	Group C (n=44)	Groups A × B × C
Impact factor				Kruskal–Wallis test
Range	0.000–3.946	0.000–35.386	0.000–3.946	p=0.661
Median±IQR	1.837±2.37	1.922±2.48	1.792±1.35	
Mean±SD	2.057±1.30	2.463±4.16	1.759±1.01	
	n (%)			χ^2 test
Impact factor ≤2	16 (59.3)	37 (52.1)	28 (63.6)	p=0.463
Impact factor >2	11 (40.7)	34 (47.9)	16 (36.4)	

IQR: interquartile range; SD: standard deviation.

techniques. Countries on the European continent were responsible for 40.8% (58/142) of publications, followed by North America and Asia, with 25% (36/142) each. Furthermore, in Europe, general or breast surgeons published more on the topic than plastic surgeons, with significant statistical difference (p=0.007).

In Canada, oncoplastic surgery is not traditionally a part of the formal training of general or oncology surgeons[3]. In this country, there is a greater interaction between breast surgeons and plastic surgeons regarding an integrated model of surgical care. The most complex volume replacement techniques are always performed by plastic surgeons; surgeons who intend to perform this type of reconstruction should receive formal specialized training in plastic surgery. Even the procedures for volume repositioning are more commonly performed in collaboration with a plastic surgeon[14,22].

Brazil has a history of excellence in plastic surgery, and this was reflected in Brazilian oncoplastic surgery, performed predominantly by plastic surgeons. In 2010, 75% of these procedures in Brazil were performed by plastic surgeons[22,24]. The technical development in oncoplastic surgery in Brazil took place mainly in large, specialized centers, with teams of plastic surgeons and breast surgeons working together[24].

A national survey with surgeons from the American Society of Breast Surgeons and the American Society of Plastic Surgeons showed that the majority (69.7%) of breast surgeons reported no limitations for performing oncoplastic surgery in their practice, and 50% of plastic surgeons reported that partial breast reconstruction was limited in their practice because they were not getting the referrals. Surgeons from both specialties agreed that the most complex reconstructions are best performed using the team approach, gathering both types of specialist[7].

A similar survey was conducted in the UK, with members of the British Association of Plastic, Reconstructive and Aesthetic Surgeons and the Association of Breast Surgery. Surgeons were contacted in two moments, 2010 and 5 years later. They found that, in 2015, the majority (75%) of breast surgeons remained interested in additional training in oncoplastic techniques, while the interest rate of plastic surgeons in additional training in oncoplastic surgery dropped from 62–27%[20].

The results of the present study corroborate this tendency to increase the performance of general or breast surgeons in oncoplastic surgery, not only with oncological results but also with patients' satisfaction and quality of life.

There are many reasons why plastic surgeons may not be available to join the team in oncoplastic surgery. There may be a less number of plastic surgeons in specific geographical area or the available plastic surgeon may not be interested in breast reconstruction. The compensation for the plastic surgeon may also be inadequate, incompatible with their level of specialization, and the complexity of the procedure to be performed. Although teamwork is possible in many places, the existence of areas with limited resources and without available plastic surgeons has encouraged breast surgeons to seek training in oncoplastic techniques[18].

Our study has limitations. A major one is the limited inclusion of studies (only those indexed at MEDLINE, in a period of five years, and written in English, Spanish, or Portuguese languages). Our results demonstrate the growing concern of general and breast surgeons with quality of life and patient's satisfaction with the results of oncoplastic surgery, outcomes that have always been part of the primary vocation of plastic surgery. However, despite the majority (83%) of the publications having been carried out in the university services, most studies are still published in journals with a relatively low impact factor (global median=1.85).

CONCLUSIONS

In the previous years, surgeons from specialties other than plastic surgery published more on PRO in oncoplastic surgery, but there was no statistical difference between the groups regarding the impact factor of the journals. Our study does not intend answer the question of who should undergo oncoplastic surgery since we recognized the complexity of this subject. The fact is that, whether a plastic surgeon or a breast surgeon, the major concern must be the patients to remain cancer free and satisfied with the aesthetics of the breast.

AUTHORS' CONTRIBUTIONS

RSA: Conceptualization, Data Curation, Formal Analysis, Writing – Original Draft, Writing – Review & Editing. **CVL:** Conceptualization, Data Curation, Formal Analysis, Writing – Original Draft, Writing – Review & Editing. **PGD:** Conceptualization, Data Curation, Formal Analysis, Writing – Original Draft, Writing – Review & Editing. **LMF:** Conceptualization, Data Curation, Formal Analysis, Writing – Review & Editing. **DFV:** Conceptualization, Data Curation, Formal Analysis, Writing – Original Draft, Writing – Review & Editing.

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