

Breast Reconstruction Practices and Barriers in West Africa: A Survey of Surgeons

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Background: Access to breast reconstruction is limited in low-income countries. Identifying current barriers that plague both providers and patients can inform future interventions focused on improving access to care. The goal of this study was to delineate perceptions of breast reconstruction among providers in West Africa and define current barriers to care.

Methods: Surveys were administered to surgeons attending the annual meeting of the West African College of Surgeons in 2018. Surgeons were surveyed regarding their practices and perceptions of breast reconstruction. Information on barriers to breast reconstruction focused on patient- and surgeon-related factors was also obtained. A univariate analysis was performed to assess association of demographic and practice information with perceptions of reconstruction barriers.

Results: Thirty-eight surgeons completed the questionnaires; 10 of the respondents were plastic surgeons (27%). The survey response rate was 40%. Factors that a majority of surgeons believed to limit access to reconstruction included limited experience (72.9%), resources (76.3%), and a lack of referrals for reconstruction (75%). In total, 76.5% of surgeons had performed <10 breast reconstruction cases in the past year. Two patient factors highlighted by most surgeons (>80%) were a lack of knowledge and concerns about cost.

Conclusions: Perspectives from surgeons in the West African College of Surgeons suggest that barriers in access, patient awareness, surgeon technical expertise, and cost limit the delivery of breast reconstructive services to women in the region. Implementation of interventions focused on these specific metrics may serve as valuable first steps in the movement to increase access to breast reconstruction. (*Plast Reconstr Surg Glob Open* 2020;8:e3259; doi: [10.1097/GOX.0000000000003259](https://doi.org/10.1097/GOX.0000000000003259); Published online 20 November 2020.)

INTRODUCTION

The beneficial impact of breast reconstruction has become a well-established principle of breast cancer

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care within many high-income and low-income countries across the world.¹⁻⁶ For instance, in the United States, breast reconstruction has become a universally covered portion of breast cancer care, given the psychosocial benefits afforded to patients who undergo both immediate and delayed forms of reconstruction through the Women's Health and Cancer Rights Act of 1998. The importance of reconstruction continues to be emphasized with more recent legislation focused on ensuring appropriate dissemination of information to patients through the Breast Cancer Patient Education Act of 2015.⁷ The overwhelming acceptance of breast reconstruction as an essential component of care has stemmed from multiple factors over time.^{8,9} First, both patients and providers have developed an improved understanding of the overall accessibility and importance of breast reconstruction through the implementation of numerous educational initiatives over time. Second, access to surgeons capable of performing breast reconstruction has facilitated the universal adoption of

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the pertinent surgical techniques in a predictable, safe fashion. Third, healthcare systems in many high-income countries have allocated the resources required to support breast reconstruction as a critical component of breast cancer care, given the impact on psychological health.^{9,10}

Conversely, most patients in low-income countries have either limited or no access to breast reconstruction despite studies demonstrating improved psychosocial outcomes after reconstruction in these patient populations and a higher incidence of disease in younger patients in these regions.^{4,5,11,12} In fact, breast reconstruction in these countries is oftentimes considered to be a cosmetic procedure, and patients are required to pay for these services out of pocket.¹³ There are many barriers that have prevented the uptake of breast reconstruction in low-income countries at the same rate as in high-income countries. These include limited access to basic oncologic care, deficits in societal awareness and education, and restricted access to multidisciplinary forms of specialty care that have hindered progress in this arena.^{10,13–15} Additionally, while plastic surgeons serve as the predominant workforce providing breast reconstruction in high-income countries, low-income countries lack the volume of surgical specialists required to efficiently provide these services.^{16,17} Consequently, this places the burden of care on general surgeons with variable levels of experience and interest in breast reconstruction. Additionally, the value of breast reconstruction remains controversial in environments overwhelmed by an excess of patients relative to the number of providers, low survival rates, and predominance of patients with advanced stages of disease.¹⁸ Sub-Saharan Africa is an example of a region with an unfortunate abundance of breast cancer, but with a dearth of literature regarding the potential impact of breast reconstruction.

Importantly, however, to improve access to oncologic and reconstructive services in a comprehensive fashion, governments, providers, and patients must first appreciate the current state of breast cancer reconstruction and the perceptions surrounding its processes.^{19,20} Identifying the current barriers that plague both providers and patients, understanding the current systems in place, and defining the current sources of funding available for breast reconstruction represents the first step in implementing targeted initiatives and improvements in these settings. Therefore, the goal of the current study was to delineate perceptions of breast reconstruction among surgical providers in West Africa and define current barriers to care.

METHODS

This is a cross-sectional study of surgeons on their practice and perception of barriers to breast reconstruction after mastectomy. All general and plastic surgeons attending the annual West African College of Surgeons scientific conference in Banjul, Gambia, in February 2018 were eligible for inclusion. The West African College of Surgeons is a sub-region-wide professional body for surgeons, that directs training, education, and certification. We surveyed surgeons using a self-administered questionnaire regarding their practice and perceptions of breast

reconstruction. An estimated 670 physicians representing a spectrum of surgical specialties attended the conference. Specialties represented, in addition to general and plastic surgery, included radiation oncology, radiology, orthopedic surgery, ophthalmology, otolaryngology, urology, and obstetrics and gynecology. Over a period of 3 days of the conference, surveys were administered to surgeons attending 2 scientific sessions primarily focused on general surgery and 2 sessions focused on plastic surgery. These specific sessions were selected and targeted to optimize access to the desired survey population.

Development of the survey began with item generation. A literature review was conducted to identify barriers to breast reconstruction, specifically in low-income/resource-poor settings, using appropriate search terms. Before survey administration, a focus group consisting of surgeons that routinely perform breast reconstruction was convened to create an instrument designed to evaluate perceptions regarding breast reconstruction. Specific themes of interest that emerged in this discussion centered on access to resources, patient perceptions, surgeon perceptions, and facility-specific processes and protocols. Thirteen statements on barriers to breast reconstruction were included, and a Likert-scale response was provided. The survey was available in both English and French translations. (See survey, **Supplemental Digital Content 1**, which displays the survey used in this study. <http://links.lww.com/PRSGO/B511>.)

Summary statistics for demographic and practice information were calculated using measures of central tendency for continuous variables and proportions for categorical variables. The responses on the barriers to breast reconstruction were recorded and analyzed for clarity, and a sensitivity analysis was conducted to ensure accuracy. Responses of “Do Not Agree At all” and “Agree a Little” were coded as not agreeing, while those of “Somewhat Agree,” “Agree Quite a bit,” and “Agree A Lot” were coded as Agreeing with the statements on barriers to breast reconstruction. Univariate analysis using Chi-square tests were performed to identify any association of demographic and practice information with perception of barriers to breast reconstruction. Statistical significance was cited at $P < 0.05$. Statistical analysis was conducted using SPSS 25 (IBM Corp, Armonk, N.Y.).

RESULTS

Demographic Data

A total of 95 surgeons attended 4 sessions. Twenty-one of the attendees were plastic surgeons. Thirty-eight surgeons completed the questionnaires. Ten of the respondents were plastic surgeons (27%), and the remainder were general surgeons. The survey response rate was 40% overall, and 47% among plastic surgeons. Most of the respondents were men (89.5%) and English-speaking (83.8%). In total, 78% of the surgeons practiced in university/teaching hospital settings and 50% had practiced for more than 10 years (Table 1).

Table 1. Surgeon Demographics

Characteristic	Frequency (%)
Age (y)	
30–40	10 (26.3)
40–50	15 (39.5)
50–60	7 (18.4)
>60	6 (15.8)
Gender	
Male	34 (89.5)
Female	4 (10.5)
Language	
English	31 (83.8)
French	6 (16.2)
Country of practice	
Nigeria	16 (42.1)
Ghana	12 (31.6)
Mali	9 (23.7)
The Gambia	1 (2.6)
Specialty	
General surgery	27 (71.1)
Plastic surgery	10 (27.0)
Level of training	
Attending/consultant	33 (86.8)
Trainee	5 (13.2)
Years in practice	
<5	10 (30.3)
5–10	6 (18.2)
11–20	10 (30.3)
>20	7 (18.4)
Practice setting	
Private	2 (5.3)
Public/non teaching	6 (15.8)
University /teaching	30 (78.9)

Mastectomy and reconstruction operations were mostly funded through patient self-pay (52.6% and 91.4%, respectively). Two-thirds of the surgeons (65.8%) worked at centers with multidisciplinary tumor boards (Table 2). In total, 21 of 26 general surgeons (80.8%) referred <25% of their patients requiring mastectomy for treatment of breast cancer, to a reconstructive surgeon. The majority of the surgeons (76.5%) performed 10 or less breast reconstruction cases in the past year.

A high proportion of surgeons responded “somewhat, quite a bit or, a lot” to the following patient factors limiting breast reconstruction in West African women: patients’ lack of knowledge about breast reconstruction (81.1%), and patients’ concerns about reconstruction cost (81.2%). Slightly fewer had similar responses in agreement to the following patient factors: patients’ desire to avoid additional surgery (60.6%), patients who feel it is not important (58.8%), and patients who think reconstruction is not available (59.5%). Most respondents did not agree with poor prognosis or spousal influence and cultural/religious beliefs as relevant limiting factors (Fig. 1).

System and surgeon factors identified by a majority of respondents as reasons for seldom referring breast reconstruction were a lack of patient referral for reconstruction (75%), limited expertise of surgeons (72.9%), and a lack of reconstruction resources such as implants (76.3%) (Fig. 2). Most surgeons (63%) felt that reconstruction was part of essential care. Those who considered breast reconstruction as essential care (63%) were more likely to consider “lack of breast reconstruction resources” as a barrier to breast reconstruction than those who did not consider breast reconstruction as essential care ($P=0.03$). Surgeons who worked at an institution with a multidisciplinary

Table 2. Surgeon Practice Information

Characteristic	Frequency (%)
Multidisciplinary tumor board at institution	
Yes	25 (65.8)
No	13 (34.2)
Referral rate for reconstruction after mastectomy	
>75%	2 (7.7)
25%–75%	3 (11.5)
1%–25%	10 (38.5)
0%	11 (42.3)
Mastectomy cases in past year	
0	4 (19)
1–10	6 (28.6)
11–20	6 (28.6)
21–50	3 (14.3)
>50	2 (9.5)
Breast reconstruction cases in past year	
0	6 (35.3)
1–10	7 (41.2)
11–20	3 (17.6)
21–50	1 (5.9)
Payers for mastectomy	
Insurance	5 (13.2)
Self-pay	20 (52.6)
Insurance and self-pay	10 (26.3)
Government and self-pay	2 (5.3)
Government	1 (2.6)
Payers for reconstruction	
Insurance	0 (0)
Self-pay	32 (91.4)
Insurance and self-pay	2 (5.3)
Government and self-pay	1 (2.6)
Government	0 (0)
Surgeon’s perception of value of breast reconstruction	
Little or no value	2 (7.4)
Cosmetic	3 (11.1)
Quality of life /not essential	5 (18.5)
Essential care	17 (63)

tumor board were also significantly more likely to disagree with “patients feel prognosis poor” as a barrier to breast reconstruction ($P=0.02$).

DISCUSSION

Understanding patient and provider perceptions at a grassroots level is of utmost importance during the process of creating new programs and initiatives in both low- and high-resource environments. In this study, we identified that while many providers believe that breast reconstruction is an important component of breast cancer care, limitations in access relate to catastrophic expenditures to patients, limited training in reconstructive techniques, and resource constraints for supplies (including implants). Initiatives designed to address these factors may ultimately lead to the greatest success in improving care for this patient population.

Educational initiatives highlighting breast reconstruction may positively impact breast cancer care in low-income countries from both a reconstructive and oncologic perspective; to this end, educating both patients and providers is critical.^{1–6,21} In this study, 76.5% performed <10 reconstructions, and 35.3% performed no reconstructions. To train providers regarding the practices and resources required to perform breast reconstruction, technology and multi-center collaboration are important avenues to consider. With regard to technology, 100% of surgeons surveyed in a study by

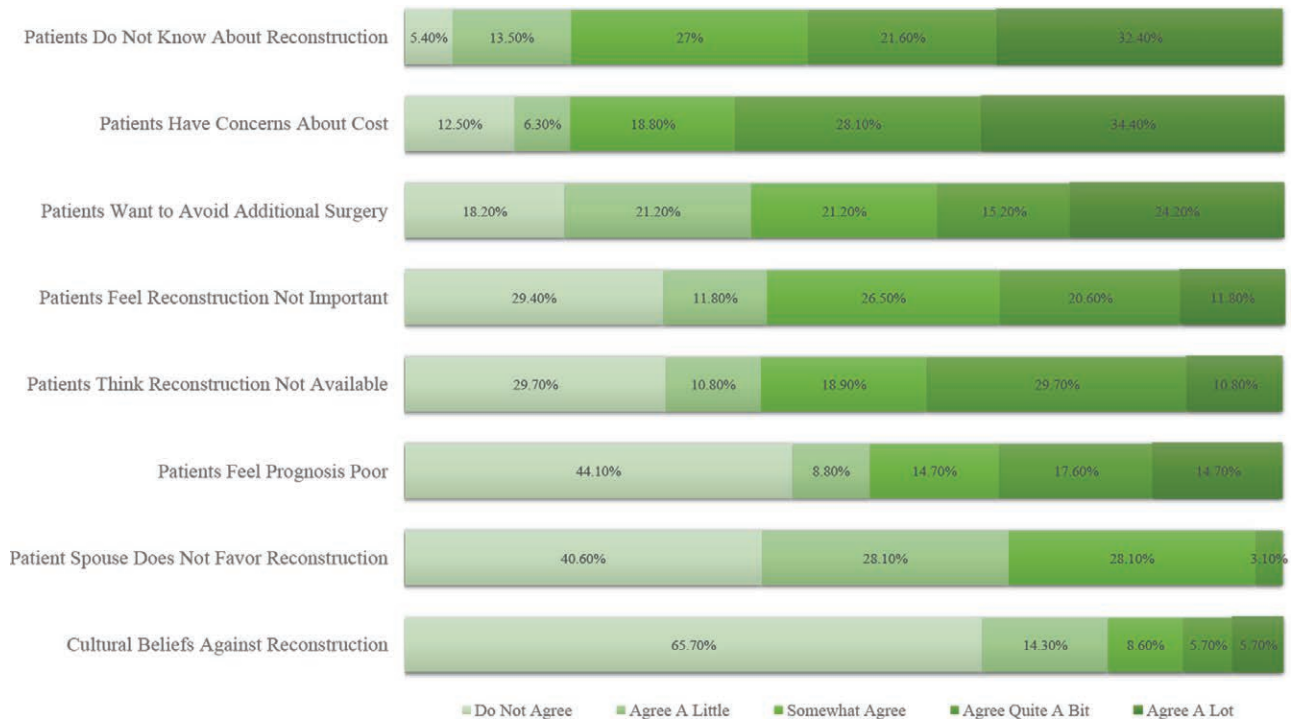


Fig. 1. Perception of barriers to breast reconstruction in West Africa: patient factors.



Fig. 2. Perception of barriers to breast reconstruction in West Africa: system and surgeon factors.

Stephens and colleagues reported having access to a computer as an important factor in this regard; 95% of these surgeons were also able to access social media in West Africa.²² Digital training programs, in addition to

hands-on training, may be an efficient form of education in this environment. Technology can also be harnessed to increase awareness among patients; collaborative campaigns through WhatsApp and other forms of social

media have been implemented recently as a means of improving cancer care in other low-income countries.²³ Multi-country collaborations can lead to the development of new referral patterns that facilitate reconstruction, given the presence of multidisciplinary tumor boards at many of the institutions surveyed in this study.

Resource constraints were found to be another limitation. Increasing access to resources is the most complex task in the effort to improve surgical cancer care in low-income countries. One of the most important concerns expressed by those surveyed in this study were the costs associated with breast reconstruction. Encouraging governments and payers to offset the catastrophic expenditures associated with breast cancer care is an important and obvious first step. As women provide innumerable benefits to society and their families, the economic benefits of treating women at earlier stages of disease represents an important motivation for increasing access to care for this patient population. In the absence of additional resources, reallocation of existing resources is the next consideration. Although it may be easy to approach reconstruction as a completely distinct or unrelated topic from oncologic care, these sectors are actually quite intertwined in their success; improving access to reconstruction has the potential to encourage earlier presentation among women at risk for breast cancer, and thus reduce mortality.

More specifically, an important factor known to limit the benefits of early diagnosis and screening in low-income countries is the stigma associated with a diagnosis of breast cancer.²⁴ As such, many trials focused solely on implementing early diagnosis/treatment and improving awareness of breast cancer have ended up unsuccessful as a result of societal fears and beliefs regarding the stigma of cancer. For example, a large population-based randomized trial examining the impact of screening using clinical breast examination in the Philippines could not be completed, as over 60% of the women in the study refused to undergo additional diagnostic work-up once a mass was found, due to the stigma associated with treatment for breast cancer.²⁴ Although community awareness initiatives may decrease stigma by emphasizing the benefits of treatment, these interventions alone do not completely address the issue at its core, given the obvious disfigurement evident after treatment with mastectomy/lumpectomy. Therefore, implementing programs that concomitantly delineate the specific benefits of early cancer care and the potential for reconstruction may encourage women to present themselves earlier for the treatment and may serve as an indirect means of improving survival rates and decreasing costs.

Including reconstructive surgeons (plastic and general surgeons) as part of multidisciplinary tumor boards is critical; the costs to do so would be minimal as many of the institutions surveyed in this study already have multidisciplinary tumor boards. Although it may not be possible to increase the amount of funding available for breast cancer care in low-resource environments, effectively allocating the resources in a manner that promotes early presentation can benefit the field as a whole.

There are important limitations to consider. First, our sample of surgeons represents a subset of all surgeons within West Africa; the views represented by this cohort may or may not be analogous to surgeons practicing in other institutions, regions, or countries. A selection bias may also exist in this regard. Next, the viewpoints expressed about patient perspectives were not obtained directly from patients, but rather indirectly from surgeons who take care of these patients. Importantly, however, understanding patient viewpoints in a direct and indirect fashion through surgeons and their experiences serves as a first step to build relationships and foster collaboration toward future initiatives centered around patients. Finally, although our instrument was not validated, an initial focus group was used to direct the concepts and themes that emerged in the final survey.

While these limitations persist, this study serves as an initial foray into the minds of patients and providers regarding perceptions about breast reconstruction to improve our understanding of the factors that may limit future adoption of this specific branch of cancer care. With these findings in mind, it may be possible to more specifically design educational initiatives that will improve surgeons' and patients' understanding of breast reconstruction. Although resource allocation will always be a critical consideration particularly for low- and middle-income countries, breast reconstruction as a means of reducing stigma and improving psychosocial functioning may prove to be economically and societally fruitful for women and their families currently debilitated by this disease process.

CONCLUSIONS

Breast reconstruction is a potential area of interest for surgeons in the West African College of Surgeons. Although barriers in access to reconstructive services, awareness, technical expertise, and costs exist, surgeon perceptions indicate that cultural norms and practices, and a lack of interest are not relevant limitations. Therefore, implementation of interventions focused on these specific metrics may serve as valuable first steps in the movement to increase access to breast reconstruction.

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