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Epidemiological analysis of women with breast cancer submitted to breast reconstruction in a tertiary hospital in Pernambuco

Abstract

Introduction: Breast reconstruction is a right assured by the public health system to patients submitted to mastectomy. However, there are factors that delay the performance of this procedure.

Objectives: To understand the epidemiological profile of women with breast cancer who underwent breast reconstruction in a reference hospital in the state of Pernambuco.

Methods: This is an observational, retrospective research with an analytical character and descriptive approach. The data were collected through a questionnaire sociodemographic and clinical-surgical history of patients with breast carcinoma, and then analyzed by SPSS software, version 18 with the percentages of the categories evaluated by the Chi - square test, considering the significance level of 5%. The comparison of analyses was significant ($p < 0.005$), showing that the profile described is the most frequent in the group of patients evaluated.

Results: A non-probabilistic sample of 400 records was obtained in ten years at a tertiary hospital in Recife (PE), most of them with mean age between 46 and 59 years (45.3%), brown (61.1%), married (79.1%), with education until high school (60.7%), household professionals (45%), non-smokers (84.9%), who do not consume alcohol (94.9%) and had immediate reconstruction after mastectomy (70.3%).

Conclusion: The findings support that patients with high educational levels are likely to undergo immediate breast reconstruction. Pointing out that the socioeconomic level significantly influences the rates of breast reconstruction after mastectomy.

Keywords: breast cancer treatment, epidemiology, mastectomy, breast cancer, breast reconstruction

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Darley Ferreira de Lima Filho,[1] Beatriz Cavalcanti Dubourcq,[2] Ana Geórgia Souto Lima,[2] Rafael Morais Marques de Andrade,[2] Maria Eduarda Cavalcanti Siqueira[3]

[1]Professor at Mauritius University of Nassau, Medicine, Recife, Pernambuco

[2]Student at Maurício de Nassau University, Medicine, Recife, Pernambuco

[3]Student at the Pernambuco Faculty of Health, Medicine, Recife, Pernambuco

Correspondence: Prof. Dr. Darley Ferreira de Lima Filho, Professor at Mauritius University of Nassau, Medicine, Recife, Pernambuco, Brazil, Email darleyferreira63@gmail.com

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Introduction

Cancer is currently considered a major global health problem, including Breast Cancer, widely recognized as a disease that affects more often the female population over forty-five years of age, with the exception of non-melanoma skin cancer. leading cause of cancer death in women being the leading cause of cancer death in women among women in high and low income countries.[1,2] There are some factors that are linked to the emergence of this condition, including the lifestyle adopted by patients.[3,4]

Mastectomy emerged as a treatment for breast cancer by physician William Stewart Halsted, an aggressive procedure that influenced the techniques currently used to perform mastectomy.[5,6] Due to the aggressiveness of the procedure, a search for new, less aggressive techniques and ways to reconstruct a new breast was initiated for women who had undergone mastectomy.[7]

In systematic reviews, the accessibility of women who underwent breast reconstruction was analyzed in relation to the sociodemographic profile of the patients, considering their accessibility.[8] It is also noticed that poor populations have lower rates of breast reconstruction, demonstrating a lower availability and advice for reconstruction.[9]

It is noticed that breast reconstruction and its evolution are related to several factors: economic, social, psychological, contributing to delay its acceptance for several decades. Thus, it is noted that there is a relationship between patients undergoing breast reconstruction procedure associated with the epidemiological factor in which they are inserted, and it is important to analyze the epidemiological profile of patients with breast cancer undergoing breast reconstruction, in order to understand which are the possible causes that relate these two factors.

Thus, it is important to understand the epidemiological profile, socioeconomic factors and the relationship between reconstruction and the end of treatment in women with breast cancer, who underwent breast reconstruction and mastectomy in a public health referral hospital in Brazil. State of Pernambuco, in order to better understand the association of these factors and change the lives of these women. And finally, to define whether patients with low socioeconomic levels undergo late breast reconstruction.

Methods

This is an observational, retrospective, analytical research with a descriptive approach. The medical records of patients diagnosed with breast cancer who underwent breast reconstruction at the mastology service of the Hospital Barão de Lucena (HBL) in Recife-PE were evaluated, with the aim of offering medical and hospital care to the population in the most diverse areas. 400 medical records were analyzed from 2010 to 2020.

This study began with the elaboration of the Research Project, submitted and approved by the Ethics and Research Committee on Human Beings of the Amaury de Medeiros Foundation, CAAE:

42457420.1.0000.5193, and data collection began in September 2020, upon approval by the committee.

For data collection, a spreadsheet was used with a total of 24 items, with closed and open questions comprising: personal data: name; telephone; medical record number; naturalness; birth date; age; color; marital status; education level (illiterate; incomplete schooling; complete high school; higher education); family income (less than one minimum wage; greater than or equal to one minimum wage); profession; life habits; smoking; alcoholism. clinical-surgical history; date of diagnosis of breast cancer (month/year); histological type; immunohistochemistry; staging; type of surgery; complementary therapy (chemotherapy and radiotherapy); breast reconstruction (immediate or delayed); follow-up.

Data were taken from medical records and documents completed by the medical team in outpatient clinics, social workers, psychologists and data from the operating room and the surgical team.

Data collection took place from September 2020 to February 2021. For data analysis, a database was built in the Microsoft Excel spreadsheet, which was exported to SPSS software, version 18, where the analysis was performed. To assess the personal and clinical profile of the evaluated patients, the percentage frequencies were calculated and the respective frequency distributions were constructed. The comparison of the percentage of the categories of the factors evaluated was performed using the chi-square test for proportion comparison. All conclusions were drawn considering a significance level of 5%. Data were analyzed using analytical and descriptive statistics.

The research followed the ethical precepts of Resolution 466/12 of the National Health Council, which aims at research ethics. The project was submitted to the Research Ethics Committee through the Plataforma Brasil and collection began after approval.

Results

Table 1 shows the distribution of the sociodemographic profile of the patients evaluated. It appears that most patients are from Recife (36.1%), are aged between 46 and 59 years (45.3%), are brown (61.1%), married (79.1%), studied up to complete/incomplete high school (60.7%), works at home (45.0%), does not smoke (84.9%) and does not consume alcoholic beverages (94.9%). Furthermore, it is observed that the proportion comparison test was significant in all factors evaluated (p-value less than 0.05), indicating that the profile described is significantly the most frequent in the group of patients evaluated; except for the place of origin variable (p-value=0.221), indicating that the number of patients from Recife, metropolitan region and countryside is similar.

Table 1 Distribution of the sociodemographic profile of the patients evaluated

Evaluated factor	N	%	p-value
Place of origin			
Recife	144	36,1	
Metropolitan region	117	29,3	0,221
interior	138	34,6	
Age			
up to 30 years	25	6,2	
31 to 45 years	129	32,3	<0,001
46 to 59 years old	181	45,3	
60 years or older	65	16,2	
Color			
White	135	33,9	
brown	243	61,1	<0,001
black	20	5,0	
Marital status			
Married	315	79,1	
Single	53	13,3	<0,001
Widow	11	2,8	
Divorced	19	4,8	
Level of schooling			
no schooling	5	1,2	
Literate	13	3,2	
Basic Complete/incomplete	94	23,6	<0,001
Medium Complete/Incomplete	242	60,7	
Superior Complete/incomplete	45	11,3	
Profession			
Unemployed	14	3,5	
paid work	167	41,8	
Student	15	3,8	<0,001
from home	180	45,0	
Retired	24	6,0	
Smoking			
Yes	60	15,1	<0,001
No	338	84,9	
Alcoholism			
Yes	20	5,1	<0,001
No	376	94,9	
Lag time			
up to 1 month	147	36,8	
More than 1 to 3 months	176	44,2	
More than 3 to 6 months	62	15,5	<0,001
More than 6 months to 1 year	2	0,5	
more than 1 year	12	3,0	
Histological type			
Ductal	356	89,0	
Lobular	15	3,7	<0,001
Others	29	7,3	

Table Continued...

Evaluated factor	N	%	p-value
TNM			
level 0	25	6,2	
Level I	107	26,8	
Level II	204	51,0	<0,001
Level III	60	15,0	
Level IV	4	1,0	
Type of surgery			
Mastectomy	169	42,3	
Quadrantectomy/Resection	130	32,5	<0,001
Segmental/sectorectomy	101	25,2	
Rebuild time			
Immediate	281	70,3	<0,001
Late	119	29,7	
QT			
Yes	321	80,5	<0,001
No	78	19,5	
Radio			
Yes	293	73,8	<0,001
No	104	26,2	
Follow up			
Normal	310	94,2	<0,001
Metastasis	19	5,8	
Molecular subtype			
HER 2	33	8,3	
Luminal A	243	60,9	<0,001
Luminal B	65	16,3	
TN	58	14,5	

[1]p-value of the chi-square test for proportion comparison

In the analysis of the clinical profile of the patients, still in Table 1, we have the distribution of the clinical profile of the evaluated patients. It appears that most patients have a delay of more than 1 to 3 months of treatment (44.1%), ductal histological type (89.0%), type II TNM (51.0%), underwent mastectomy (32.5%), had surgery performed immediately (70.3%), underwent chemotherapy (80.5%), underwent radiotherapy (73.8%), has normal follow-up (94.2%) and luminal molecular subtype A (60.9%). The proportion comparison test was significant in all factors evaluated (p-value < 0.001), indicating that the clinical profile described is significantly the most frequent among the evaluated patients (Figure 1).

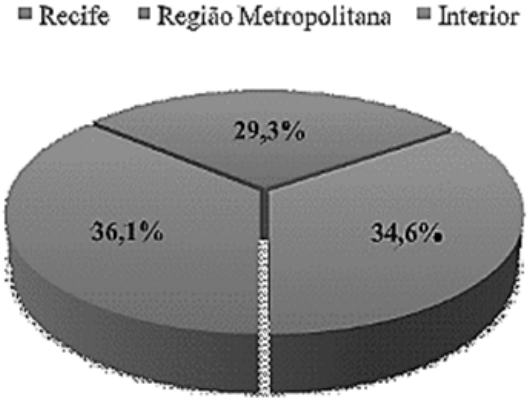

Figure 1 Distribution of patients by place of origin.

Table 2 shows the distribution of the histological type according to the sociodemographic profile of the evaluated patients. It appears that the independence test was significant in none of the sociodemographic factors evaluated (p-value greater than 0.05 in all variables), indicating that the place of origin, age group, color, marital status, education level, profession and smoking are not factors that significantly alter the histological type found, with ductal being the most prevalent in all categories of variables evaluated; except for the alcoholism factor in which the test was significant (p-value=0.038), indicating that there is a difference in the histological type distribution between patients who consume alcohol and those who do not. In the group of patients who use alcohol, 85% have the ductal type and 15% have the lobular type. For the group that does not consume alcohol, 89.1% had the ductal type, 3.2% had the lobular type and 7.7% had other histological types.

Table 3 shows the distribution of the TNM classification according to the sociodemographic profile of the patients evaluated. It appears that the independence test was significant only for the profession factor (p-value=0.007), indicating that the functional category of patients significantly alters the TNM classification. In the group of unemployed patients and students, there was a more homogeneous distribution of the TNM classification. For the group with paid work, the highest concentration was in TNM classification I and II. For nursing home patients and those who are retired, most were classified at level II of the TNM. For the other factors, there was no significant difference in the distribution of TNM between the categories of variables evaluated (p-value greater than 0.05), with classification II being the most prevalent in all categories.

Table 2 Distribution of the histological type according to the sociodemographic profile of the patients evaluated

Evaluated factor	Histological type			p-value
	Ductal	Lobular	Others	
Place of origin				
Recife	129(89,6%)	3(2,1%)	12(8,3%)	
Metropolitan region	103(88,1%)	4(3,4%)	10(8,5%)	0,398[1]
interior	123(89,1%)	8(5,8%)	7(5,1%)	

Table Continued...

Evaluated factor	Histological type			p-value
	Ductal	Lobular	Others	
Age				
up to 30 years	23(92,0%)	1(4,0%)	1(4,0%)	
31 to 45 years	114(88,4%)	4(3,1%)	11(8,5%)	0,527[2]
46 to 59 years old	158(87,3%)	10(5,5%)	13(7,2%)	
60 years or older	61(93,8%)	0(0,0%)	4(6,2%)	
Color				
White	116(85,9%)	5(3,7%)	14(10,4%)	
brown	219(90,1%)	10(4,1%)	14(5,8%)	0,524[2]
black	19(95,0%)	0(0,0%)	1(5,0%)	
Marital status				
Married	280(88,9%)	13(4,1%)	22(7,0%)	
Single	47(88,7%)	1(1,9%)	5(9,4%)	0,909[2]
Widow	10(90,9%)	0(0,0%)	1(9,1%)	
Divorced	17(89,4%)	1(5,3%)	1(5,3%)	
Level of schooling				
no schooling	5(100,0%)	0(0,0%)	0(0,0%)	
Literate	13(100,0%)	0(0,0%)	0(0,0%)	
Basic Complete/incomplete	82(87,3%)	5(5,3%)	7(7,4%)	0,981[2]
Medium Complete/Incomplete	214(88,4%)	9(3,7%)	19(7,9%)	
Superior Complete/incomplete	41(91,1%)	1(2,2%)	3(6,7%)	
Profession				
Unemployed	12(85,7%)	0(0,0%)	2(14,3%)	
paid work	148(88,6%)	7(4,2%)	12(7,2%)	
Student	14(93,3%)	1(6,7%)	0(0,0%)	0,674[2]
from home	159(88,4%)	6(3,3%)	15(8,3%)	
Retired	23(95,8%)	1(4,2%)	0(0,0%)	
Smoking				
Yes	55(91,7%)	3(5,0%)	2(3,3%)	0,412[2]
No	299(88,5%)	12(3,5%)	27(8,0%)	
Alcoholism				
Yes	17(85,0%)	3(15,0%)	0(0,0%)	0,038[2]
No	335(89,1%)	12(3,2%)	29(7,7%)	

[1]p-value of the chi-square test for independence

[2]p-value of Fisher's exact test

Citation: Filho DFL, Dubourcq BC, Lima AGS, et al. Epidemiological analysis of women with breast cancer submitted to breast reconstruction in a tertiary hospital in Pernambuco. *J Cancer Prev Curr Res.* 2022;13(1):25–32. DOI: 10.15406/jcpcr.2022.13.00482

Table 3 Distribution of the TNM classification according to the sociodemographic profile of the patients evaluated

Evaluated factor	TNM classification				p-value
	0	I	II	III and IV	
Place of origin					
Recife	7(4,8%)	39(27,1%)	72(50,0%)	26(18,1%)	
Metropolitan region	10(8,5%)	38(32,5%)	49(41,9%)	20(17,1%)	0,123[1]
Interior	8(5,8%)	29(21,0%)	83(60,2%)	18(13,0%)	
Age					
up to 30 years	4(16,0%)	8(32,0%)	8(32,0%)	5(20,0%)	
31 to 45 years	8(6,2%)	33(25,6%)	69(53,5%)	19(14,7%)	0,535[1]
46 to 59 years old	8(4,4%)	49(27,1%)	93(51,4%)	31(17,1%)	
60 years or older	5(7,7%)	17(26,2%)	34(52,3%)	9(13,8%)	
Color					
White	8(5,9%)	36(26,7%)	73(54,1%)	18(13,3%)	
brown	14(5,8%)	66(27,2%)	120(49,4%)	43(17,7%)	0,881[1]
black	2(10,0%)	4(20,0%)	11(55,0%)	3(15,0%)	
Marital status					
Married	17(5,4%)	86(27,3%)	167(53,0%)	45(14,3%)	
Single	8(15,1%)	12(22,6%)	21(39,6%)	12(22,6%)	0,197[2]
Widow	0(0,0%)	3(27,3%)	6(54,5%)	2(18,2%)	
Divorced	0(0,0%)	6(31,6%)	9(47,4%)	4(21,1%)	
Level of schooling					
no schooling	0(0,0%)	2(40,0%)	2(40,0%)	1(20,0%)	
Literate	0(0,0%)	5(38,5%)	5(38,5%)	3(23,0%)	
Basic Complete/incomplete	7(7,4%)	22(23,4%)	50(53,2%)	15(16,0%)	0,943[2]
Medium Complete/Incomplete	17(7,0%)	65(26,9%)	121(50,0%)	39(16,1%)	
Superior Compl/incompl	1(2,2%)	13(28,9%)	25(55,6%)	6(13,3%)	
Profession					
Unemployed	3(21,4%)	4(28,6%)	5(35,7%)	2(14,3%)	
paid work	8(4,8%)	48(28,7%)	78(46,7%)	33(19,8%)	
Student	4(26,7%)	4(26,7%)	4(26,7%)	3(19,9%)	0,007[2]
from home	9(5,0%)	48(26,7%)	102(56,7%)	21(11,7%)	
Retired	1(4,2%)	3(12,5%)	15(62,5%)	5(20,8%)	
Smoking					
Yes	4(6,7%)	17(28,3%)	30(50,0%)	9(15,0%)	0,984[1]
No	21(6,2%)	89(26,3%)	173(51,2%)	55(16,3%)	
alcoholism					
Yes	0(0,0%)	7(35,0%)	11(55,0%)	2(10,0%)	0,622[2]
No	25(6,6%)	98(26,1%)	191(50,8%)	62(16,5%)	

[1]p-value of the chi-square test for independence

[2]p-value of Fisher's exact test

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Table 4 shows the distribution of follow-up according to the sociodemographic profile of the patients evaluated. There is a higher prevalence of metastasis in the group of patients from Recife (8.4%), up to 30 years of age (8.3%), black (13.3%), single (10.6%) , with higher education Compl/incompl (9.4%), student (13.3%), non-smoker (6.8%) and non-alcoholic (6.2%). Even though a higher prevalence of metastasis was found in the group of patients with the described profile, the independence test was significant in none of the evaluated factors (p-value greater than 0.05 in all variables), indicating that the sociodemographic profile of the patients was not is crucial to change the Follow UP.

Table 4 Distribution of Follow UP according to the sociodemographic profile of the evaluated patients

Evaluated factor	Follow up		p-value
	Metastasis	Normal	
Place of origin			
Recife	10(8,4%)	109(91,6%)	
Metropolitan region	4(4,2%)	91(95,8%)	0,311[1]
Interior	5(4,4%)	109(95,6%)	
Age			
up to 30 years	2(8,3%)	22(91,7%)	
31 to 45 years	6(5,6%)	101(94,4%)	0,811[2]
46 to 59 years old	9(6,3%)	133(93,7%)	
60 years or older	2(3,6%)	54(96,4%)	
Color			
White	6(5,3%)	107(94,7%)	
brown	11(5,5%)	188(94,5%)	0,442[1]
black	2(13,3%)	13(86,7%)	
Civil status			
Married	13(5,1%)	242(94,9%)	
Single	5(10,6%)	42(89,4%)	0,365[2]
Widow	0(0,0%)	9(100,0%)	
Divorcee	1(5,9%)	16(94,1%)	
Level of schooling			
no schooling	0(0,0%)	5(100,0%)	
Literate	0(0,0%)	9(100,0%)	
Fundamental Compl/incompl	6(7,7%)	72(92,3%)	0,661[2]
Medium Complete/Incomplete	10(4,9%)	194(95,1%)	
Superior Compl/incompl	3(9,4%)	29(90,6%)	
Profession			
Unemployed	0(0,0%)	14(100,0%)	
paid work	9(6,8%)	124(93,2%)	
Student	2(13,3%)	13(86,7%)	0,279[2]
from home	6(4,1%)	141(95,9%)	
Retired	2(10,0%)	18(90,0%)	
Smoking			
Yes	0(0,0%)	48(100,0%)	0,088[2]
No	19(6,8%)	260(93,2%)	
Alcoholism			
Yes	0(0,0%)	18(100,0%)	0,612[2]
No	19(6,2%)	288(93,8%)	

[1]p-value of the chi-square test for independence

[2]p-value of Fisher's exact test

Citation: Filho DFL, Dubourcq BC, Lima AGS, et al. Epidemiological analysis of women with breast cancer submitted to breast reconstruction in a tertiary hospital in Pernambuco. *J Cancer Prev Curr Res.* 2022;13(1):25–32. DOI: 10.15406/jcpcr.2022.13.00482

Discussion

Regarding the sociodemographic and epidemiological profile of women with breast cancer undergoing breast reconstruction, it is observed that most of them are aged between 46 and 59 years.[10] The prevalence at this age is related to the accumulation of hormonal exposures and biological changes inherent to aging.[11] Importantly, the incidence of breast cancer by race and ethnicity in the study was highest among self-reported brown people (61.1%), followed closely by white women (33.9%) (<0.001). Analyzing this scenario, it appears that such data are in contrast to other literature, which demonstrate that most women who underwent mastectomy were white.[12]

Observing the marital status, it was analyzed that 13.3% of the patients are single, 79.1% are married and 2.8% are widows. It is also noted that most patients who underwent breast reconstruction after mastectomy are predominantly married, which corresponds to other studies carried out previously.[7,9,13] It is also worth mentioning that the risk of having breast cancer at an advanced stage increased almost three times in women who were never married.[14]

Understanding the association between the sociodemographic factors of the patients who underwent breast reconstruction, it was also analyzed that among the patients who underwent breast reconstruction after mastectomy, 36.1% are from the capital Recife, 29.3% from other cities in the Recife metropolitan region and 34.6% are from the interior of the state, showing that people from the urban area, with greater access to tertiary hospitals, seek more breast reconstruction services.

Regarding alcohol consumption, it was seen that 15.1% of the patients were stylists, a rate similar to that of other studies.[9,12] On the other hand, in relation to smoking, 5.1% smoked at the time of diagnosis and when associated with the study by Nunes, it was evidenced that 18.3% were smokers or ex-smokers. Another factor to be evaluated is that most studies did not show a significant association between breast cancer and smoking.[15]

Regarding the level of education, it can be seen that patients who underwent breast reconstruction had completed high school (60.7%), 11.3% had higher education. Thus, it is noted that the higher the education of the patients, the greater the search for reconstruction.[16]

In addition, it was pointed out that most women who underwent breast reconstruction had some type of employment relationship. The study showed that 41.8% of the patients had some paid work. With this, we can infer that women in the labor market seek more for a reconstruction procedure.[17] The rate of patients who underwent immediate reconstruction was 70.3% patients and those who underwent delayed reconstruction was 29.7%. These data are positive when compared to data in the literature, in which 18.5% underwent immediate reconstruction while 9.5% underwent late reconstruction.[2]

It was analyzed that the majority (81%) of breast cancers are of the invasive or infiltrating type, which means that the abnormal cells have broken through the walls of the glands or ducts from which they originated and have grown into the surrounding breast tissue, when compared to our study. , where it was demonstrated that 89% of resected tumors were of the ductal histological type, consistent with information found in the literature, where ICD (infiltrating ductal carcinoma) represented 86.9%.[9,18-30]

Conclusion

It is concluded that the socioeconomic level significantly influences the rates of breast reconstruction after mastectomy. With this, we can show that the higher the socioeconomic level of the woman, the greater the prevalence of carrying out preventive measures and procedures that aim to improve the patient's quality of life. of reconstruction. It is also worth mentioning that breast reconstruction, when properly indicated, does not present a risk of recurrence or a worse prognosis for the patient, being listed as an extremely important practice for maintaining the self-esteem of many women.

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None.

Conflicts of interest

Authors declare that there is no conflict of interest.

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