Care flow of breast cancer patients in the public health care network*

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ABSTRACT

A cross-sectional, analytical study with the aim to analyze the prevalence and factors associated to the care flow of breast cancer patients at the three levels of health care exclusively in the Unified Health System (SUS - Sistema Único de Saúde). Ninety-two women with breast cancer aged between 29 and 82 years in outpatient care at tertiary level of health care in SUS were interviewed. The prevalence of use of the flow performed exclusively in SUS at the three levels of health care was 43.5% (95% CI 33.6-53.7). About a third of women had consultations or exams performed in the private network, especially mammography. The factors associated with use of the flow exclusively in SUS at the three levels were age ≤20 years at first gynecological visit (OR = 2.55), and not having paid work (OR = 3.28). These results suggest the need for improved access to the public health care network for women with breast cancer.

Descriptors: Breast Neoplasms; Health Services Accessibility; Women's Health Services.

INTRODUCTION

The Brazilian health system is formed by the public and private subsystems. The public subsystem is represented by the Unified Health System (SUS – Sistema Único de Saúde), has integrated financing and management of federal, state and municipal governments, including privately hired and/or contracted services. The private health subsystem is divided into supplementary and classic liberal (autonomous private services) health subsectors. The supplementary health subsector is composed of private service providers, different

types of private health plans and services financed by public or private resources, insurance policies and tax subsidies. Although the public and private components of the system are distinct, they are interconnected[1]. The organization of health care in SUS was conceived as an articulated network between primary, secondary and tertiary care according to the levels of complexity. Primary care services comprise primary health services, are decentralized, and located close to the population, while secondary and tertiary care services are regionalized. SUS has its network of primary health care services, but few services of its own in secondary care, which are predominantly offered by the supplementary health subsector hired by SUS[1-2].

The disarticulation between the service supply and demands results in iniquities in access and inefficiency of the health system. The fragile regulation of access and the disorganized flow of users lead to low efficiency of cases attended. Therefore, the health care flow of users in SUS aims to optimize the users' trajectory to achieve resolution, facilitate access and contribute to universality and equity in health[2]. Preferably, the structuring of the system should start by the basic attention since it has the roles of organization and coordination of users' flows and counterflows. However, the regulatory mechanisms of SUS are still being structured and are neither robust nor efficient[1-2].

Individuals with chronic-degenerative diseases often use the care flows because of their need for a greater number of consultations and control tests. Among the degenerative diseases, breast cancer is the most important in women in Brazil and worldwide, excluding non-melanoma skin cancer[3-4]. For the symptomatic population, the Ministry of Health recommends the care flow from primary care that should identify the suspected cases, and prioritize referral to secondary level for image evaluation and diagnostic confirmation. In confirmed cases, treatment is performed in tertiary care services[5-6]. This flow should present a continuum of interconnected and integrated actions of care lines to favor the adequate assistance[7-8].

In Brazil, breast cancer cases are usually diagnosed late and/or have a delayed start of treatment[9-10]. The country also has inequalities in the trend of breast cancer mortality, which is decreasing in states of higher socioeconomic level and increasing in poorer states[11]. The pattern of use of SUS may vary according to factors such as the type of health problem and geographical area. The health care inequalities of women with breast cancer in the country demonstrate the need for studies on the complete follow-up using the Recommended Patient Flow through the SUS.

The analysis of the complete follow-up using the Recommended Patient Flow through the SUS used by women with breast cancer is a way of investigating its critical nodes. Thus, the aim of this study was to analyze the prevalence and factors associated with the care flow of breast cancer patients at the three levels of health care exclusively through the SUS.

METHODOLOGY

An analytical cross-sectional study conducted in a capital city of the Brazilian Midwest. The study was conducted at the mastology clinic of the Hospital das Clínicas of the Universidade Federal de Goiás, which is

a university hospital at tertiary level of health care of the SUS own network, and located in the city of Goiânia (state of Goiás – GO), Brazil. The present study was approved by the Research Ethics Committee of the Hospital das Clínicas of the Universidade Federal de Goiás under protocol number 162/2011. It was performed in accordance with Brazilian standards for human research.

The study included users of the mastology clinic aged older than 18 years, living in the city of Goiânia and in outpatient treatment for breast cancer in the year 2012. Physically debilitated women and those with difficulty to answer the interview questions were excluded from the study. The sample was of convenience, with all users present in the service in the period between February 10 and May 20, 2012. All participants were interviewed by the researcher in a private room, with use of a structured form, and after signing the Informed Consent (IC) form.

The care flows were classified in: A - care flow at the three levels of health care exclusively in SUS; B - care flow at primary and tertiary levels in SUS; C - care flow in the screening campaign and at tertiary level in SUS; D - care flow at primary and tertiary levels in SUS, and care flow at secondary level in the private subsystem; and E - care flow at secondary level in the private subsystem, and care flow at tertiary level in SUS. The prevalence of different care flows were calculated with their respective 95% confidence intervals using the OpenEpi software (http://openepi.com/OE2.3/Menu/OpenEpiMenu.htm). Screening campaigns and non-specialized medical consultations were considered as primary care level. Imaging exams and specialized consultations were considered as secondary care level.

For the analysis of factors associated to the care flow outcome at the three levels of health care exclusively in SUS, was used a dichotomized outcome (yes/no). The variables of exposure were: age in years; educational level in years; married (yes/no); paid work (yes/no); own house (yes/no); contribution to family income (yes/no); monthly family income less than or equal to a minimum wage (yes/no); family history of breast cancer (yes/no); age at first gynecological visit <20 years (yes/no). The measure of association of exposure variables with the outcome variable was the odds ratio (OR) using the chi-square or Fisher test for bivariate analysis when appropriate. The multivariate analysis was performed by means of logistic regression (backward stepwise). Variables that showed association with the outcome with p <0.10 in bivariate analysis were included in the multivariate model, and the final model was evaluated by the Hosmer-Lemeshow test. The independent variables associated with the outcome were those with p value<0.05 after adjustment.

SUS and the private health subsystem were compared in the proportion of time intervals spent by women in the care steps (from the request to schedule a mammogram and ultrasound until the return to doctor). The interval of ≤15 days to access each of the four steps of assistance was considered a satisfactory time: from the request until the exam scheduling, from the scheduling until performance of the exam, from performance of the exam until the access to the result and, from the access to the exam result until the return to doctor. The definition of 15 days as maximum time interval was based on the Ministry of Health recommendation of maximum limit of 60 days between the diagnosis and start of treatment of breast cancer[12]. Proportion comparisons were made using the chi-square test.

The facilities to use a care flow were described considering the following variables: scheduling of specialized consultation, specialized consultation, scheduling of the start of treatment and performance of treatment in the hospital. These were all dichotomous variables (easy, yes/no).

Data was entered in the Microsoft Excel 2003 program. Data analysis was performed with use of the SPSS software, version 15.0.

RESULTS

The study included 92 women on outpatient breast cancer treatment, with mean age of 56.1 years (standard deviation = 10.9 years). The prevalence of women undergoing breast cancer treatment who did not use the private health subsystem was 67.4% (n = 62, 95% CI, 57.3-76.4). Table 1 shows that less than half of women (43.5%, 95% CI, 33.6-53.7) reported care flow at the three levels of health care exclusively in SUS (flow A). Almost 25% of women went through care flows B and C, and represent the proportion of women with probable late diagnosis, with immediate referral to treatment at tertiary care level. The care flows D and E show 32.6% of studied women used the private subsystem at secondary level of health care.

Table 1: Types and prevalence of care flows used by 92 women in outpatient treatment for breast cancer. Goiânia, GO, Brazil, 2012.

Types of care flow	Levels of health care				n	Prevalence (%)	CI 95%
	Primary		Secondary	Tertiary			
	Campaign	Non-specialized consultation					
A	-	SUS	SUS	SUS	40	43.5	33.6-53.7
B	-	SUS	-	SUS	9	9.8	4.9-17.2
C	SUS	-	-	SUS	13	14.1	8.1-22.4
D	-	SUS	Private	SUS	12	13.0	7.3-21.1
E	-	-	Private	SUS	18	19.6	12.4-28.6

The potential factors associated with care flow at the three levels of health care exclusively in SUS were women who underwent gynecological consultations aged <20 years and those who did not have paid work (Table 2).

Table 2: Bivariate analysis of potential factors associated with care flow used by women for breast cancer treatment at the three levels of health care exclusively in SUS. Goiânia, GO, Brazil, 2012.

Variables of exposure	Care flow at the three levels of health care exclusively in SUS		OR*	CI 95%**	P value
	Yes	No			
	n/total (%)	n/total (%)			
Age at first gynecological visit <20 years	20/40 (50.0)	16/52 (30.8)	2.25	0.96-5.29	0.061
Educational level up to primary school	28/40 (70.0)	30/52 (57.7)	1.71	0.72-4.09	0.225
No paid work	31/40 (77.5)	28/52 (53.8)	2.95	1.18-7.42	0.019
Married	18/40 (45.0)	26/52 (50.0)	0.82	0.36-1.87	0.634
Does not contribute with family income	15/40 (37.5)	15/52 (28.8)	1.48	0.62-3.56	0.380
Monthly family income ≤ 1 minimum wage	14/40 (35.0)	18/51 (35.3)	0.99	0.42-2.35	0.977
Not a house owner	17/40 (42.5)	21/52 (40.4)	1.09	0.47-2.52	0.838
Family history of breast cancer	3/40 (7.5)	9/52 (17.3)	0.39	0.10-1.54	0.219

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* OR = *odds ratio*

** CI = 95% confidence interval

The factors independently associated with care flow at the three levels of health care exclusively in SUS were gynecological visit with <20 years of age and no paid work (Table 3).

Table 3: Multivariate analysis of factors associated with care flow at the three levels of health care exclusively in SUS reported by women with breast cancer. Goiânia, GO, Brasil, 2012.

Associated factors	OR*	CI 95%**	P value
Age at first gynecological visit < 20 years	2.55	1.04-6.26	0.042
No paid work	3.28	1.26-8.53	0.015

* OR = *odds ratio* adjusted for age

** CI = 95% confidence interval

Regarding mammogram (n = 80) and ultrasound (n = 62), table 4 shows the majority of interviewees spent ≤15 days at each step to perform these exams. Proportionally, the private subsystem was more agile than the public health care network to perform mammogram when compared to ultrasound.

Table 4: Proportion of mammogram (n = 80) and ultrasound (n = 62) exams performed in SUS and steps from the request until the return to doctor. Goiânia, GO, Brazil, 2012.

Service steps with time spent ≤15 days	% of women		P value
	SUS	Not SUS	
Mammogram			
From request to scheduling	85.0	68.4	0.081
From scheduling to performance	76.2	76.8	0.470
From performance until access to result	64.9	90.5	0.001
From access to result until return to doctor	62.5	95.5	0.001
Ultrasound			
From request to scheduling	85.0	90.0	0.637
From scheduling to performance	85.0	90.0	0.637
From performance until access to result	83.3	95.0	0.229
From access to result until return to doctor	67.5	90.5	0.051

The main access facilities reported by women who used the care flow at the three levels of health care exclusively in SUS were: to schedule the specialized consultation (80%), schedule the start of treatment (85%), and performance of treatment in the hospital (92, 5%). Women who went through flow E have reported it was easier to schedule (82.4%) and perform the specialized consultation (100%) in the private subsystem than to perform treatment in the hospital (72.2%). There was a greater proportion of women who indicated the specialized consultation in the private network (100%) as a facilitator of the flow compared to women who had the specialized consultation in SUS (71.8%), showing a significant difference (p = 0.01).

DISCUSSION

Although all study participants are SUS users, less than half followed the care flow at the three levels of health care exclusively in SUS (Flow A). Explanations for the low prevalence found in flow A hardly exclude the difficulty in accessing SUS services, particularly the access to early diagnosis services and prompt

treatment. This difficulty in accessing early diagnosis of breast cancer can be attributed to the fragile structuring of the SUS care network, which is visible by the overload of specialized centers and search for private services to obtain agility of diagnosis and treatment[10]. On the other hand, it penalizes the most deprived populations without access to private and/or supplementary health services, probably increasing the late diagnosis. Improving access to secondary level of SUS health care implies ensuring human and financial resources, equipment and supplies.

The variation in access to different levels of health care may also be a result of women's lack of information on the functionality of the complex public subsector of health[13-14]. Women who had their first gynecological visit before the age of 20 years probably had access because they had information about the services available in SUS. Women without paid work also had a greater chance of using the flow exclusively in SUS at the three levels of health care. These women are probably more able to schedule and attend consultations, since ambulatory care services work during business hours, which does not favor the access to the majority of working users[14-15].

With the expansion of primary health care coverage by SUS, the demand pressure for secondary and tertiary services has increased, generating critical "nodes" such as the difficulty of access to diagnostic services. In the city of Goiânia, primary health care coverage was around 60% in 2012, with estimate of 65.44% by 2017[16]. However, there is lack of analyzes on the provision of services at secondary level of care to breast cancer.

The care flow D (SUS-private system-SUS) was followed by 13% of women, which suggests the occurrence of breast cancer diagnostic suspicion in Basic Health Units, as well as for women who followed flow A and flow B (43.5% and 9.8% of women, respectively). Among the hypotheses raised about the flow D, these women may have used health insurance plans or their own resources with the intention of speeding up the diagnosis[8].

About 20% of women who followed flow E (private system-SUS) certainly had a health insurance plan or own resources only for secondary level of care. In fact, it is known that part of the low socioeconomic level population uses health insurance plans of more affordable cost, and uses high-cost services and procedures in SUS[1]. In recent years, this has been pointed as one of the consequences of control mechanisms of health insurance companies[17]. However, some studies already show the growth of expenses of private health insurance plans in high complexity care[18-19] and that care resources by SUS are insufficient to meet this demand[2].

Women who followed care flows B and C may have had a late diagnosis because there was a direct referral from primary to tertiary care in SUS. In flow B, women may not have been timely identified or have aggressive cancers that were not caught in routine screening. In Brazil, the coverage rates for annual breast cancer screening are varied, a fact that potentially reduces these women's survival chances[20-21]. Approximately a third of breast tumors in Goiânia are diagnosed late[13]. The use of care flow of users only at tertiary level in SUS (flow C) occurred through screening campaigns. Although the present study was not

designed for this purpose, the results suggest that breast cancer screening campaigns in Goiânia contributed with the treatment institution.

Most women included in the study reported agility in the scheduling and assistance in diagnostic services, but those who used their own resources or supplementary health plans reported greater agility to perform mammograms. In fact, mammograms performed through supplementary health plans or own resources were performed in a shorter time than in SUS. The inequality of access to diagnostic services is related to low survival rates[13-14] and shows weaknesses to reach efficiencyinte in health care.

This is the first study on the types of care flow in Goiânia-GO that identified the characteristics of people who use SUS exclusively, with emphasis on the integral care approach to users of SUS health care network. A limitation of this study refers to the possible overestimation of the prevalence of women doing the complete follow-up using the recommended patient flow through the SUS (at three levels of health care). The study sample did not include women in outpatient treatment in the private subsector. Another limitation relates to the convenience sample and sample size hence, conclusions from the results of the present study should be made with caution.

CONCLUSIONS

The present study showed the different care flows used by women with breast cancer in the city of Goiânia (state of Goiás). Less than half of women used the care flow at the three levels of health care exclusively in SUS. The main difficulty for public health care network users was the access to diagnostic services. The factors associated with using the flow exclusively in SUS were age less than 20 years at the first gynecological visit and not having paid work.

The deficiencies in the complete follow-up and efficiency using the recommended patient flow of breast cancer patients through the SUS network found in the present study point to challenges for public policies and the regulation of public and private subsectors. They also indicate the need for future studies to monitor the access of women with breast cancer to the public health care network.

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