

# Risks and Prevention of Breast Cancer in Cameroon: Research into the Determinants of Late Screening in Douala

Henri Essome<sup>1,2\*</sup>, Fulbert Mangala Nkwele<sup>1</sup>, Theophille Nana Njamen<sup>3</sup>, Ekono Michel Roger<sup>1</sup>, Moustapha Bilkissou<sup>1</sup>, Astrid Ndolo Kondo<sup>1</sup>, Ingrid Doriane Ofakem Ilick<sup>2</sup>, Christelle Enama Olinga<sup>1</sup>, Junie Ngaha Yaneu<sup>1</sup>, Marga Vanina Ngoni Akam<sup>1</sup>, Gervais Mounchikpou Ngouhou<sup>1</sup>, Grace Tocki Toutou<sup>2</sup>, Jean Paul Engbang Ndamba<sup>1,2</sup>, Charlotte Tchente Nguetack<sup>1</sup>, Pascal Foumane<sup>4</sup>

<sup>1</sup>Obstetrics Gynecology Training, Teaching and Research Unit- Faculty of Medicine and Pharmaceutical Sciences- University of Douala Cameroon; <sup>2</sup>Laquintinie Hospital – Douala, Cameroon; <sup>3</sup>Faculty of Health Sciences of Buea, Cameroon; <sup>4</sup>Faculty of Medicine of Sangmelima, Cameroon

## ABSTRACT

**Introduction:** Breast cancer is the leading female cancer in terms of incidence and mortality. It is responsible for an average loss of life expectancy of about twelve years. Overall survival, all stages combined, is approximately 60% at five years; it kills 2108 women in Cameroon.

**Research question:** What justifies late screening in our setting?

**Objective:** Our study was part of the perspective of better understanding the social determinants of delays in early detection of breast cancer in order to develop counseling strategies for a change in the behavior of the popular masses.

**Methodology:** This was a comparative cross-sectional study with an analytical aim carried out over a period of 06 months (from January 15 to July 15, 2020) by means of a structured and pre-tested questionnaire after informed consent obtained from the participants approached in the consultation units of these hospitals. The study variables were behavioral and practical. The data collected were entered and analyzed using SPSS 23.0 software (statistical package for social sciences) with a significance level established for a value of  $p < 0.05$ .

**Results:** We retained 1000 eligible women who had given their consent, including 818 users and 182 caregivers in our study population, a significant concordance was found in terms of age groups below 50 years, trader occupation, low level of education and use of traditional pharmacopoeia as determinants of late screening of breast cancer in our community.

**Conclusion:** The results of our study could be an important guide for the actions of the prevention and control program for the early diagnosis of breast cancer in Cameroon through information, education and the fight against poverty.

**Keywords:** Breast cancer, Attitudes, Practices, Factors, Late detection.

**Correspondence to:** Essome Henri, Obstetrics Gynecology Training, Teaching and Research Unit- Faculty of Medicine and Pharmaceutical Sciences- University of Douala, Cameroon; Email: essometocky@yahoo.com

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## INTRODUCTION

Breast cancer is the leading female cancer in terms of incidence and mortality; it is a real global scourge and therefore a worrying public health problem. Statistically, it is estimated that one in ten women will develop breast cancer. In women under fifty, it accounts for half of all cancers. While approximately 5% of patients present with breast cancer at the metastatic stage, 30 to 50% of patients with initially localized cancer will develop metastases [1-3]. The annual incidence, steadily increasing (about 2% per year), is currently estimated at about 100 per 100,000 women. This incidence varies with age, with a peak in frequency around the age of fifty, followed by a plateau for a few years and then again by a steadily increasing upward line. The average age at diagnosis is around 55 years. Breast cancer is responsible for an average loss of life expectancy of about twelve years. Overall survival, all stages combined, is about 60% at five years, knowing however that more than a third of patients will die of their cancer. The annual incidence of death from breast cancer is around 25 per 100,000 women. This incidence of death is slightly decreasing in the Western world, unlike the incidence of occurrence and is mainly the result of an early diagnosis through systematic screening as well as an improvement in adjuvant therapies and their indications.

Worldwide, 2,261,419 cases of breast cancer were diagnosed in 2020. It is the leading cause of death worldwide from neoplasia in women with nearly 684,996 deaths in 2020. In the United States, data collected by the International Agency for Research on Cancer (IARC) notes an incidence of 234,087/100,000 in 2018. In France, the incidence (the number of new cases) in 2018 was 56162/100000 [4-7]. In China, it is the most frequently diagnosed cancer with 169,452 new cases of invasive breast cancer [8]. In low-income countries, the incidence rate of breast cancer is very increasing [9]. In Algeria, its incidence is clearly increasing, rising from 9.6 cases per 100,000 inhabitants in 2003 to 19.44 cases per 100,000 inhabitants in 2005[10]. In Tunisia, it is the most common female cancer [11]. In South Africa, its incidence is higher than in sub-Saharan African countries [12]. In the sub-Saharan zone, there has been an increase in its incidence, which has increased from 15 to 53 new cases per 100,000 inhabitants [13]. In Cameroon it ranks first and is responsible for 2108 cases of death in 2020 [Globocan 2020] [1, 14] with an overall survival rate of 30% in 5 years reported by Ngowa in 2015 at the general hospital of Yaoundé with an overall survival rate of 30% at 5 years and a death rate of 1780/100,000 [14].

The late diagnosis of breast cancer in Cameroon is topical and seems to be related to our referential or again our emblem. However, the prognosis of this cancer is closely linked to the stage at which the diagnosis is made. Early detection therefore remains the main means of combating the disease. It improves the chances of survival as well as the outcome of breast cancer. However, the success of early screening in the population depends essentially on rigorous planning and a well-organized and sustainable program [15].

This vision remains problematic in Cameroon where, in addition to the high mortality from this cancer due to late diagnosis, there is no organized screening strategy. This study was therefore part of the general perspective of better understanding the social determinants of delays in breast cancer screening [16].

## METHODOLOGY

### Type of study

This was a comparative cross-sectional prospective study with an analytical aim.

### Place of study

Our study was multi-centric (04 hospitals) in the city of Douala including the health facilities of the "Pink October" network, in particular the Laquintinie Hospital Douala (LHD), and the district hospitals of Deido (DDH), Logbaba (LDH), and Nylon (NDH).

### Period and Duration of the study

Our study covered the period from December 2019 to August 2020, i.e. a duration of 09 months

### Study population

The study population consisted of female users of these hospitals as well as female caregivers.

### Inclusion criteria:

Included in the study was any female user consulting or not in one of the health facilities chosen by the study as well as any female caregiver working in the study sites. Any female user and caregiver with a personal history of breast cancer was excluded, as well as any woman with breast cancer at the time of recruitment.

Refusal to participate in the study was the criterion for non-inclusion:

### Sampling

We proceeded to a non-exhaustive consecutive sampling and the minimum size was estimated from the Lorenz formula:

$$N = \frac{[T^2 * p(1-p)]}{m^2}$$

Where:

N = minimum sample required

T = 95% confidence interval (1.96)

p = prevalence of pathology. i.e. 35.1% [6]

m = margin of error at 5% (standard value 0.05)

Numerical application:

$$N = \frac{1.96 * 1.96 * 0.351(1-0.351)}{0.05 * 0.05} = 350 \text{ cases}$$

### Administrative procedure and data collection

Administrative process: A research protocol had been drafted and submitted to the Faculty of Medicine and Pharmaceutical Sciences of the University of Douala (FMSP-UD). An ethical clearance authorization had been requested and obtained from the institutional ethics committee of the University of Douala, as well as a research authorization requested and obtained from the directors of the 4 selected hospitals in the city of Douala (LDH, DDH, LHD, and NDH).

Collection of data: Data collection was done using a pre-tested technical sheet including informed consent and a questionnaire. The interview was carried out in complete confidentiality in a room adjoining the various reception services (for users) and in all the care units (for caregivers).

The variables studied were:

- Socio-demographic data of the population: Age, Education level, Marital status, Religion, Region, Nationality, Group (user or caregiver)
- Knowledge of the attitudes and practices of users and caregivers on breast cancer screening (individual screening, mass screening, medical consultation, consultation of the African pharmacopoeia, rituals and customs, religious beliefs, self-examination of the breasts) .
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- Definition of operational terms
- Study quotations
- Knowledge rating grid on attitudes and skills
- The evaluation of attitudes and aptitude was first made by totaling the number of points obtained by each participant in the “knowledge” section of our questionnaire. Each correct answer was worth 1 point and the wrong one 0 points. Subsequently, the results were reduced to a percentage for an overall assessment as presented in the assessment grid of Essi et al [23]. Secondly, for the search for associations between the different parts, we had grouped into two groups.
- Above 65% = good knowledge
- Below 65% = poor knowledge

Attitudes: attitudes are perceptions, beliefs, representations and motivations that one can have in the face of a phenomenon.

Practices: are real acts performed by the person in a situation, in their context.

Caregiver: this is paramedical staff made up of state-certified nurses (IDE), midwives, licensed nurses.

Users: any person using a public service. The public service here being the hospital [16- 23].

## RESULT

At the end of our study, we recruited a total of 1060 women and 60 were excluded. Among the 60 excluded, 02 women users were carriers of breast cancer at the time of our survey, 48 women refused to participate and 10 files were incorrectly filled out. We selected and interviewed 1000 eligible women who had given their consent, including 182 caregivers (18.2%) and 818 users (81.8%) (Figure 1).

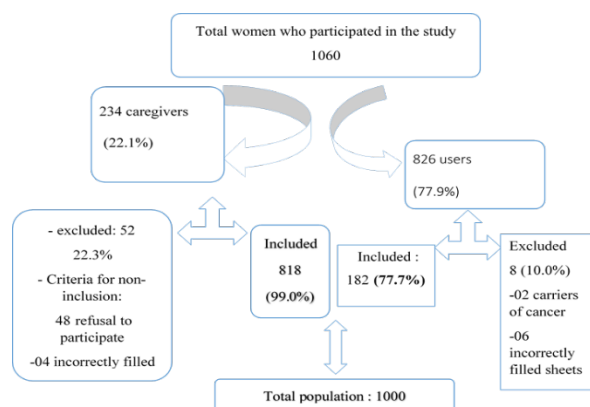


Figure 2. Flow diagram

Almost all of our users (99%) were of uncertain income, with 46.21% having a level of education below higher studies, 65.52% single and 76.16% were under 50 years of age with an average age at the time of recruitment of 30.7 years ± 10.8 years and extremes of 15 and 67 years (Tables 1 and 2).

Table 1. Distribution of users and caregivers according to age groups and level of education

		Users		Caregiver	
		n	(%)	n	(%)
		N=818		N=182	
Age range	<20	121	14,8	4	2,2
	[20-30]	307	37,5	110	60,4
	[30-40]	202	24,7	43	23,6
	[40-50]	114	13,9	18	9,9
	[50-60]	62	7,6	6	3,3
	≥60	12	1,5	1	0,5
Level of education	Not scolarised	25	3,1	0	0,0
	Primary	134	16,4	1	0,5
	Secondary	219	26,8	43	23,6
	Higher studies	439	53,7	138	75,8

**Table 2.** Distribution by profession and marital status

		Users		Caregiver	
				n	(%)
		n	(%)	N=182	
		N=818			
Occupation	Pupil/student	363	44,4	0	0,0
	Trader	199	24,3	0	0,0
	Housewife	147	18,0	0	0,0
	Farmer	14	1,7	0	0,0
	Entrepreneur	2	0,2	0	0,0
	Caregiver	0	0,0	182	100
	Others	93	11,4	0	0,0
Marital status	Single	506	61,9	122	67,0
	Married	282	34,5	56	30,8
	Widow	10	1,2	3	1,6
	Divorced	20	2,4	1	0,5

Users generally had poor knowledge about breast cancer and significantly women traders. And those of them (users) whose level of education was higher education had a good knowledge of this pathology (Table 3).

**Table 3.** Socio-demographic factors associated with knowledge

Factors		Adjusted OR (IC95%)	p-value
Age range	<20	Ref	1
	[20-30]	1,09(0,70-1,69)	0,692
	[30-40]	1,05(0,62-1,78)	0,833
	[40-50]	1,36(0,73-2,50)	0,323
	[50-60]	1,26(0,61-2,56)	0,525
	≥60	0,29(0,06-1,30)	0,108
Level of education	Non scolarised	Ref	1
	Primary	0,40(0,15-1,06)	0,066
	Secondary	0,41(0,16-1,06)	0,067
	Higher studies	0,31(0,11-0,83)	0,02*
Occupation	Pupil/student	1,18(0,69-2,01)	0,546
	Trader	1,81(1,05-3,12)	0,032*
	Housewife	1,55(0,88-2,72)	0,123
	Farmer	0,27(0,05-1,39)	0,119
	Entrepreneur	1,82(0,10-30,55)	0,676
	Caregiver	0,35(0,19-0,64)	0,001*
	Others	Ref	1

Concordantly and significantly, the user population had a lack of knowledge of the risk factors for breast cancer, in particular (Table 4).

The high-fat diet  $OR = 1.44(1.02 - 2.02) p = 0.036$

Tobacco consumption  $OR = 1.54(1.08 - 2.19) p = 0.015$

Lack of breastfeeding  $OR = 1.61(1.11 - 2.32) p = 0.010$

Lack of physical activity  $OR = 1.60(1.08 - 2.39) p = 0.019^*$

**Table 4.** The study of knowledge associated with risk factors

Risk factors	User	Caregiver	Adjusted OR (IC95%)	p-value
	n(%)	n(%)		
Age risk	523(79,6)	134(20,4)	1,18(0,80-1,72)	0,389
Cancer linked to high fat diet	352(86,0)	48(14,0)	1,44(1,02-2,02)	0,036*
Tobacco is a risk factor	433(78,2)	121(21,8)	1,54(1,08-2,19)	0,015*
1st childbirth after 30 years is a risk factor	342(78,4)	94(21,6)	1,13(0,80-1,60)	0,463
Lack of breastfeeding	485(78,9)	130(21,1)	1,61(1,11-2,32)	0,010*
Nulliparity as a risk factor	307(73,3)	112(26,7)	0,44(0,31-0,63)	<0,001*
Oral contraceptive pills	482(79,7)	123(20,3)	1,22(0,85-1,74)	0,273
Oestrogen increases the risk of breast cancer	377(78,2)	105(21,8)	1,39(0,99-1,96)	0,054
Lack of physical exercise	533(88,0)	39(12,0)	1,60(1,08-2,39)	0,019*

The use of traditional pharmacopoeia was quite significant in the population of users surveyed (Table 5).

$OR = 1.60(1.07 - 2.38) p = 0.008^*$

**Table 5.** Study of attitudes associated with early detection

	Users	caregiver	Adjusted OR (IC95%)	p-value
	n(%)	n(%)		
Medical consultation	661(80,2)	163(19,8)	0,49(0,29-0,82)	0,007*
African Pharmacopoeia	241(86,4)	38(13,60)	1,60(1,07-2,38)	0,02*
Religious belief	185(77,4)	54(22,6)	0,61(0,42-0,88)	0,008*

The age groups <50 years in the user population were significantly associated with bad practices. The same was true for the level of education below university level (Table 6).

**Table 6.** Factors associated with Bad Practices

Factors		Adjusted OR (IC95%)	p-value
Age range	[20-30]	5,46(2,84-10,53)	<0,0001
	[30-40]	4,08(2,01-8,25)	<0,0001
	[40-50]	3,26(1,39-7,67)	0,006
Educational level	< Higher studies	2,30(1,51-3,48)	<0,0001
Region of origin	South	0,56(0,26-1,18)	0,130
	East	0,33(0,11-0,95)	0,040
	North	0,28(0,06-1,24)	0,095
	Centre	0,65(0,42-1,02)	0,064

## DISCUSSION

Early detection remains the main way to fight cancer. It improves the chances of breast cancer survival. Cameroon, like developing countries, does not have a system organized screening and survival for breast cancer is low. Our study was part of a perspective of researching within a population of hospital users the determinants of late detection of breast cancer. More than 76% of our user sample was under 50 years old with an average age at the time of recruitment of 30.7 years  $\pm$  10.8 years and extremes of 15 and 67 years. This finding yields two major pieces of information: the average age of our users refers more to the maximum slice of human reproduction; that is to say far from oncological concerns; at this period of life, the socio-cultural pressure is more oriented towards information relating to marriage and fertility. The same is true of the majority of this group

aged under 50; i.e., below the benchmark 55 years reported as the average age of onset of breast cancer in the literature [1]. All things which, in our opinion, would explain the significant ignorance of the risk factors linked to breast cancer. The duties of a sovereign state are the well-being of its fellow citizens, broken down into health coverage, education and finance.

To convey a message in a mass campaign strategy, beyond linguistic contextualization, we are also sometimes required to communicate in a borrowed language inherited from colonization and the appropriation of the message will also depend on the level of education of the receiver (here the users). The user group, the subject of our current study, was mainly made up of members with a level education below university level; therefore, a source of inappropriate responses [5, 6]. The presence of female students in this group justifies the protective character found after analysis of our files survey and statistical analysis of our data; thus,

revealing the added value linked to education and certainly to information as reported by African series [5, 6]. The notion of traders, students, pupils, housewives, single people refer, in our context, with uncertain financial income and lack of assistance. Almost all of our users (99%), a heterogeneous group made up of pupils, students and traders, with uncertain incomes as known in our context, with 65.52% of single refer to social insecurity in harmony with the finding's other authors [5,6].

The significant use of traditional pharmacopoeia instead of so-called conventional first-line medicine confirms the weight of socio-cultural data in our attitudes and practices. This finding is quite significant and regularly reported by African series [5,6]. Concordantly and significantly, the low level of education, social insecurity and the use of traditional pharmacopoeia were found in our study to be determinants of late detection of breast cancer [5, 6, 9, 11, 13].

## CONCLUSION

The results of our study could be an important guide for the actions of the prevention and control program for the early diagnosis of breast cancer in Cameroon through information, education and the fight against poverty.

## CONFLICT OF INTEREST

The authors declare that they have no conflict of interest; research concerns were primarily scientific

## CONTRIBUTION OF THE STUDY TO SCIENCE

Our study highlights the levers on which operational strategies should be based in order to effectively fight against the delay in breast cancer screening in Cameroon.

## AUTHORS' CONTRIBUTION

Essome: coordinated the study and wrote the manuscript.

Enama: collected the data.

Tocki: ensured the English translation as well as the formatting of the manuscript.

Mangala, Nana, Ekono, Bilkissou, Ndolo, Ofakem, Ngaha, Ngono, Mouchikpou, Engbang, Tchente read and corrected the manuscript.

Foumane supervised the study and corrected the manuscript.

All authors have read and validated the final manuscript.

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