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Knowledge, Attitude, and Practice on Breast Cancer among Health Professionals in Douala References Hospitals, Cameroon

Charlotte Tchente Nguefack[1] · **Calvin N'djeudjui**[2] · **Jean Paul Ndamba Engbang**[3] · **Théophile Njamen Nana**[4] · **Gregory Halle Ekane**[4] · **Pierre-Marie Tebeu**[5]

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Abstract In Cameroon, patients with breast cancer are more often diagnosed at stage III and IV, hence the need of preventives actions. Knowledge and attitude of medical personnel may influence their practice with regards to screening and early detection of breast cancer. Very few is known about this subject in Cameroon. The objective was to describe the knowledge, attitude, and practice of health care professionals on breast cancer risk factors, diagnostic methods, and screening. This was a cross-sectional study conducted during a 6-month period, among health professionals of Douala General Hospital and Laquintinie Hospital, Cameroon.

Data were collected using a self-administered questionnaire which included demographic characteristics, questions on breast cancer risk factors, screening, and diagnostic methods. Marks were attributed to each question and calculated for each section. Participants fell in four categories of knowledge, attitude, and practice: very weak, weak, good, and excellent. The software XLStat7.5.2 was used for data analysis. Overall, 445 health professionals were interviewed. The average age was 39 ± 9 years. The level of knowledge, attitude, and practice was accessed respectively as weak (50.1%), very good (64.5%), and poor (36.4%). The personal practice of female workers was poor (43.0%). Compared to participants with very weak to weak knowledge, those with good to excellent knowledge had 1.55-fold odds of excellent attitude $p < 0.0001$. After multivariate analysis, the factor associated with good to excellent knowledge was the participant qualification (academic degree). These results suggest the need for training of health professionals in Douala references hospitals on breast cancer risks factors, diagnostic, and screening methods.

Keywords Knowledge · Attitude · Practice · Health professionals · Breast cancer · Cameroon

✉ Charlotte Tchente Nguefack
cnguefack2007@yahoo.fr

Calvin N'djeudjui
ndjeudjuicalvin@yahoo.fr

Jean Paul Ndamba Engbang
jean_pen@yahoo.ca

Théophile Njamen Nana
njanatheo@yahoo.fr

Gregory Halle Ekane
hallegregory@yahoo.fr

Pierre-Marie Tebeu
pmtebeu@yahoo.fr

[1] Douala General Hospital, Department of Surgery and Specialties, University of Douala, Po Box 303, Douala, Cameroon

[2] Douala General Hospital, Po Box 4856, Douala, Cameroon

[3] Laquintinie Hospital, Department of Surgery and Specialties, University of Douala, Po Box 4035, Douala, Cameroon

[4] Douala General Hospital, Department of Obstetrics and Gynecology, University of Buea, Po Box 4856, Buea, Cameroon

[5] Department of Obstetrics and Gynecology, University Hospitals, Po Box 4772, Yaoundé, Cameroon

Introduction

Breast cancer is the most common cancer in women worldwide, with nearly 1.7 million new cases diagnosed in 2012. Since the 2008 estimates, breast cancer incidence has increased by more than 20%, while mortality has increased by 14% [1].

Breast cancer is a leading cause of cancer death in the less developed countries of the world. This is partly because a shift in lifestyles is causing an increase in incidence, and also because clinical advances to combat the disease are not available to women living in these regions [1]. More often, the disease is still diagnosed in advanced stages. More than half of patients with breast cancer are diagnosed at stage III and IV in Nigeria and Cameroon [2, 3].

Early diagnosis of breast cancer results in very large gain for affected women, as it increases the chances of a cure at lower costs and with fewer chances of comorbidities. Thus, several programs of primary and secondary prevention have been developed in order to reduce the incidence, and especially mortality related to this disease [4].

The disparity in breast cancer incidence and mortality between the developed and developing nations is because of the different levels of knowledge about risk factors for disease, access to effective treatment, and especially the existence of screening and early detection programs [5].

Health care professionals have a major influence on the correct perception of these cancers by women of their communities, and their motivation to get tested. Moreover, the level of knowledge and attitude of health care professionals on breast cancer are major determinants of their influence on the adoption of screening methods by women within their communities [6]. Studies in Nigeria and India revealed that female health workers who are expected to act as role models and educate the public had poor knowledge of risk factors for breast cancer and practice of breast cancer screening [7, 8]. A study done in Yaoundé General Hospital reveals that health workers have a good level of knowledge of breast cancer screening; however, their rate of personal practice of breast cancer screening by mammography and the monthly BSE is low [9]. Nothing has been done in Douala, the main economic and popular town. The aim of the study was to describe the knowledge, attitude, and practice of health care professionals on breast cancer risk factors, diagnostic methods, and screening.

Materials and Methods

This was a cross-sectional study conducted for 6 months among health care professionals of Douala General Hospital and Laquintinie Hospital, Cameroon. These hospitals are the level two and three medical centers in Cameroon. They are referral and teaching hospitals in Douala, the economic capital of Cameroon that comprises of about 2.7 million inhabitants.

Sampling was systematic. We obtained the authorization of the Institutional Ethics Committee of research for human health of the University of Douala and the consent of all the professionals who participated in the study. Data were collected using an anonymous self-administered questionnaire which included demographic and professional characteristic questions, questions on knowledge, attitude and practice on breast cancer screening, diagnosis, and risk factors. The procedure consisted of, firstly, an explanation of the study purpose, then we obtained the verbal consent of health care professionals who agree to participate. Thereafter, they were given the self-administered questionnaire. Filling the questionnaire required 15 to 30 min, and they were collected by the main investigator once completed.

To assess the knowledge of participants, we asked questions about risk factors, diagnosis, and screening methods for breast cancer. To evaluate the attitude, we sought what the participants thought about the effectiveness of breast cancer screening methods. To assess the practice, we asked if the participants advised breast self-examination to patients, if they systematically sought risk factors of breast cancer, if they ordered breast mammograms for screening, and if they educated patients about breast cancer clinical signs and screening methods. Concerning the personal practice of female staff, we sought the practice of breast self-examination, the annual visit to the health personnel for clinical examination, and the practice of mammography screening.

Two levels of marks were considered: first, that of single question, followed by marks for each section known as knowledge, attitude, and practice. For single question of knowledge, each was marked as one point when the answer was correct and minus one if it was wrong. For single question of attitude and practice, each was marked as one point when the answer was correct and zero if it was wrong.

The scoring was as follows: 36 was the maximum score of knowledge of the entire population, three was the maximum score of attitude of the entire population, three was the maximum score of practice of medical doctors (general practitioners and specialists), four was the maximum score of practice of paramedical staff (nurses and lab technicians), and three was the maximum score of personal practice of female workers. The maximum score attributed in each section corresponds to 100%. The knowledge, attitude, and practice of the participants were classified as very weak (less than 25% of correct answers), weak (25% or more and less than 50%), good (50% or more and less than 75%), and excellent (75% or more).

The software XLStat7.5.2 was used for data analysis. Quantitative variables were presented as mean ± standard deviation and qualitative variables as effectives and percentages. In bivariate analysis, the comparison between qualitative

variables was performed using the Chi 2 test where appropriate and Fisher exact probability for small numbers. To assess the association between knowledge, attitude, and practice, 2 × 2 tables were performed. Odds ratio with 95% CI was also used. The level of significance at 0.05 was considered. For the analysis of factors associated with knowledge, univariate analysis was used to determine the odds ratio. Significant variables in the univariate analysis were included in a multivariate model.

Results

Of the 585 healthcare professionals in the two hospitals, 445 accepted to participate giving a participation rate of 76.1%. Among the participants, 323 were women, hence a sex ratio of 2.6. The mean age of the participants was 39 ± 9 years. The age range 30–39 years was the most represented (41.3%) followed by the range 40–49 years (23.1%). Job tenure was more often between 1 and 120 months (56.9%), followed by 121–240 months (238%). The paramedical staff was more represented (85.8%) than medical staff (14.2%).

The level of knowledge was assessed as very weak in 24 out of 445 (5.4%), weak in 223 out of 445 (50.1%), good in 177 out of 445 (39.8%), or excellent in 21 out of 445(4.7%) (Table 1).

The overall analysis of the attitude of participants was classified as very poor in 12/445 (2.7%), poor in 22/445 (4.9%), good in 124/445 (27.9%), and excellent in 287/445 (64.5%) (Table 1).

The practice was estimated as very poor in 126/445 (28.3%), poor in 162/445 (36.4%), good in 43/445 (9.7%), and excellent in 114/445 (25.6%) (Table 1).

Personal practice of female workers was very poor in 12/323 (3.7%), poor in 139/323 (43.0%), good in 79/323 (24.5%), and excellent in 93/323 (28.8%) (Table 1). It was found that 78.9% of the female workers has performed breast self-examination (BSE) in the past (33.4% every month); 49.2% had clinical examination by a health worker and 8.7% of them had undergone a mammogram for routine screening of breast cancer (Table 2).

More detailed analysis was used to assess the association between knowledge, attitude, and practice of health care professionals. Compared to health care professionals with very weak to weak knowledge, those with good to excellent knowledge had 1.55-fold odds of excellent attitudes $p < 0.0001$ (CI at 95% 1.32–1.82). Knowledge did not influence the practice, nor did the attitude influence practice (Table 3).

Knowledge was influenced by age, qualification, and job tenure with p values of 0.027, 0.0003, and 0.016. After multivariate analysis, age and job tenure appeared as confounders (Table 4).

Table 1 Knowledge, attitude, and practice of participants on breast cancer screening and prevention

	Nurses n = 339 (%)	Lab technicians n = 43 (%)	General practitioners n = 20 (%)	Physician specialists n = 43 (%)	Total n = 445 (%)
Knowledge					
Very weak	19 (5.6)	2 (4.7)	0 (0.0)	3 (7.0)	24 (5.4)
Weak	184 (54.3)	23 (53.5)	6 (30.0)	10 (23.3)	223 (50.1)
Good	126 (37.2)	17 (39.5)	12 (60.0)	22 (51.2)	177 (39.8)
Excellent	10 (2.9)	1 (2.3)	2 (10.0)	8 (18.6)	21 (4.7)
Attitude					
Very poor	9 (2.7)	0 (0.0)	1 (5.0)	2 (4.7)	12 (2.7)
Poor	17 (5.0)	3 (7.0)	0 (0.0)	2 (4.7)	22 (4.9)
Good	96 (28.3)	13 (30.2)	5 (25.0)	10 (23.3)	124 (27.9)
Excellent	217 (64.0)	27 (62.8)	14 (70.0)	29 (67.4)	287 (64.5)
Practice					
Very poor	76 (22.4)	17 (39.5)	9 (45.0)	24 (55.0)	126 (28.3)
Poor	127 (37.5)	15 (34.9)	8 (40.0)	12 (27.9)	162 (36.4)
Good	34 (10.0)	3 (7.0)	2 (10.0)	4 (9.3)	43 (9.7)
Excellent	102 (30.1)	5 (18.6)	1 (5.0)	3 (7.5)	114 (25.6)
Personal practice of female workers[a]					
Very poor	10 (3.7)	1 (5.0)	0 (0.0)	1 (5.0)	12 (3.7)
Poor	119 (43.9)	8 (40.0)	4 (33.3)	8 (40.0)	139 (43.0)
Good	62 (22.9)	7 (35.0)	7 (58.3)	3 (15.0)	79 (24.5)
Excellent	80 (29.5)	4 (20.0)	1 (8.3)	8 (40.0)	93 (28.8)

[a] Breast self-examination, annual examination by a health professional, and realization of screening mammography

Table 2 Personal practice of female health workers on breast cancer screening

	Nurses $n = 271$ (%)	Lab technicians $n = 20$ (%)	General practitioners $n = 12$ (%)	Specialists $n = 20$ (%)	Total $n = 323$ (%)
Breast self examination (BSE)	210 (77.5)	18 (90.0)	10 (83.3)	17 (85.0)	255 (78.9)
Frequency of BSE					
>1 month	102 (37.6)	10 (50)	4 (33.3)	9 (45)	125 (38.7)
Monthly	91 (43.3)	5 (27.8)	5 (50.0)	7 (41.2)	108 (33.4)
Daily	17 (8.1)	3 (16.7)	1 (10.0)	1 (5.9)	22 (6.8)
Clinical examination by a health worker	137 (50.6)	8 (40.0)	4 (33.3)	10 (50.0)	159 (49.2)
Have ever had a mammography	46 (15.5)	2 (10.0)	1 (8.3)	4 (20.0)	53 (16.4)
Reasons for mammography examination					
Routine screening	23 (8.5)	1 (5.0)	1 (8.3)	3 (5.0)	28 (8.7)
Breast disease	23 (8.5)	1 (5.0)	0 (0.0)	1 (5.0)	25 (7.7)

Discussion

This study revealed that the level of knowledge of health care professionals on breast cancer was weak, their attitude was good, and their practice was mainly poor.

In the study, more than half of the paramedical staff had low knowledge on breast cancer. This can be explained either by inadequate initial training or lack of postgraduate training by the medical professionals who are more knowledgeable. Health care is mainly provided by paramedical staff in rural areas of Cameroon (which accounts for almost half of the population), so their adequate training is vital for population.

These results are similar to those of a Nigerien study where knowledge of nonmedical personnel was very low [10]. In Nigeria, physicians had better knowledge than nurses [11]. Nurses working in a general hospital in Singapore, where

Table 3 Relationship between knowledge, attitude, and practice

	Very weak/weak knowledge *n* (%)	Good/excellent knowledge *n* (%)	OR (95% CI)	*p*
Knowledge and attitude of all participants				
Very poor/poor/good attitudes	114 (46.2)	44 (22.2)		
Excellent attitudes	133 (53.8)	154 (77.8)	1.55 (1.32–1.82)	<0.0001
Knowledge and practice of all participants				
Very poor/poor/good practice	190 (76.9)	141 (71.2)		
Excellent practice	57 (23.1)	57 (28.8)	1.14 (0.93–1.41)	0.2
Knowledge and practice of the paramedical staff[a]				
Very poor/poor/good practice	171 (75.2)	101 (65.8)		
Excellent practice	57 (24.8)	53 (34.2)	1.21(0.14–22.03)	0.058
Knowledge and practice of the medical staff				
Very poor/poor/good practice	17 (100)	39 (90.7)		
Excellent practice	0 (0)	4 (9.3)	0.82(0.32–1.81)	0.4
Knowledge and practice of female staff				
Very poor/poor/good practice	136 (72.7)	94 (69.1)		
Excellent practice	51 (27.3)	42 (30.9)	1.07 (0.87–1.33)	0.5
Attitude and practice of all participants				
	Poor/good attitude	Excellent attitude		
Very poor/poor/good practice	126 (79.7)	205 (71.4)		
Excellent practice	32 (20.3)	82 (28.6)	1.36 (0.98–1.88)	0.07

[a] Represents nurses and lab technicians

Table 4 Analysis of predictors of good knowledge

	Very weak/weak knowledge *n* (%)	Good/excellent knowledge *n* (%)	OR (95% CI)	*p*
Sex				
Female	187 (57.9)	136 (42.1)	1	
Male	60 (49.2)	62 (50.8)	1.17 (0.96–1.44)	0.12
Age				
Mean ± SD	38 ± 9	40 ± 9		0.027
<30	47 (62.7)	28 (37.3)	1	0.021
30–39	105 (57.1)	79 (42.9)	1.09 (0.88–1.36)	0.4
40–49	62 (60.2)	41 (39.8)	1.04 (0.82–1.31)	0.85
>59	33 (39.8)	50 (60.2)	1.57 (1.15–2.16)	0.006
Qualification group				
Nurses	203 (59.9)	136 (40.1)	1	0.0003
Lab technicians	25(58.1)	18 (41.9)	1.03 (0.78–1.34)	0.95
General practitioners	6 (30.0)	14 (70.0)	1.99 (1.01–3.92)	0.016
Specialists	13 (30.2)	30 (69.8)	1.98 (1.24–3.14)	0.0004
Hospital				
DGH	105 (52.5)	95 (47.5)	1	
LHD	142 (58.0)	103 (42.0)	0.90 (0.76–1.07)	0.2
Job tenure (months)				
Mean ± SD	124 ± 98	148 ± 112		0.016
1–120	148 (58.5)	105 (41.5)	1	0.045
121–240	63 (59.4)	43 (40.6)	0.98 (0.81–1.18)	0.96
241–360	33 (41.8)	46 (58.2)	1.40 (1.06–1.85)	0.013
>360	3 (42.9)	4 (57.1)	1.36 (0.57–3.23)	0.6

Mean ± SD mean ± standard deviation, *DGH* Douala General Hospital, *LHD* Laquintinie Hospital Douala

women with breast cancer are consulted, had good knowledge of breast cancer progression, average understanding of symptoms, and treatment options, but lacked knowledge of risk factors and screening procedures [12]. A study done in Karachi, Pakistan reveals that many health care professionals have fairly good awareness regarding the risk factors, symptoms, and role of mammography [13]. It is important to note that in that study, medical staff represented majority of the studied population. So, in developing countries, nurses needed to be well trained on breast cancer prevention as it is known that they play a key role in promoting breast cancer awareness among women in any society since they have more direct contact (than medical doctors) with the general population. Coleman et al. showed that there is a significant improvement in the demonstration of breast cancer screening practice after the training of rural health care providers. Nurses performed significantly better than physicians on the breast examination during the post training test [6].

We found that the medical staff had very little practice in breast cancer screening; only a quarter of them practiced clinical breast exam during their consultation. The large number of consultations was the main reason given by physicians for a nonsystematic clinical breast examination practice. These results are similar to those of a study carried out in Tunisia where gynecologists practiced less clinical breast examination during their consultation [14]. We advised that physicians should systematically practice breast examination of their patients especially in developing countries where screening programs using mammography are not developed.

In this study, the personal practice of female workers was low for regular breast self-examination (33.4%) and routine mammography (8.7%). These results are similar to those of Shiryazdi SM and Akhigbe AO were only 10.6 and 3.1% of women (respectively) had undergone a mammogram [7, 15]. A study in Saudi Arabia and India confirmed that nurses have good knowledge but still very low practice on breast cancer screening [8, 16]. Another study done in Turkey revealed that 27.3% of female health workers reported doing a self-breast examination on a regular basis; the rate of clinical breast examination was 24.8% and only 10.1% had a mammography [17]. In the study done in Yaoundé, 23.5% of female employees practice breast self-examination monthly and screening mammography was practiced by 22.5% of the female employees aged 45 years and older [9].

Our results showed that knowledge on breast cancer screening influenced the attitude, but the attitude did not

influence the practice. Furthermore, knowledge had no influence on the practice. In our environment, physicians are facing mounting demands including the increasing administrative requirements for health care delivery (e.g., service and authorization requests and meetings), the need to have two jobs or more to earn more money, and the increasing number of patients per consultation. These factors could minimize the time and attention given to a patient. Many health care professionals related the lack of practice of breast exams to the little time they have to spend with the patient. This aspect should change because ethically, good medical practice is patient-centered. Studies have shown that longer visits seem to allow for more attention to several aspects of care, including increased patient participation, patient education, and preventive health [18]. We hereby emphasize that regardless of the length of a consultation, physicians must develop strategies to enhance the quality of patient care.

Factors that were associated to good knowledge after univariate analysis include age (over 50 years), qualification, and job tenure. After logistic regression was carried out, participant qualification remained the only variable associated with good knowledge. We then understand that training is essential to the acquisition of knowledge. Similar results were found in Niger, except that their younger staff had better knowledge [10].

Conclusion

This study revealed that less than half of the health care professionals had good knowledge on breast cancer. The results also suggested that the acquisition of knowledge on screening methods and risk factors of breast cancer favored the development of proper medical attitude. However, the practice was low in all cases. Finally, the participants' qualification was the only factor associated with good knowledge. We then recommended the need for continuous and effective training of health professionals on the risk factors, diagnosis, and screening methods of breast cancer. We advise that physicians systematically practice breast examination of their patients regardless the length of their consultation.

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