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Knowledge, Attitudes and Practices of Congolese Women in Kinshasa on Breast Cancer

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Abstract

Context: Breast cancer is a high-mortality disease. Early detection has considerably reduced mortality in developed countries. **Objectives:** To assess the knowledge, attitudes and practices of Congolese women in Kinshasa on breast cancer, their levels and to identify factors associated with insufficient knowledge, negative attitudes and non-beneficial practices. **Material and Methods:** This was a descriptive cross-sectional study with analytical aims, carried out from June 1 to September 30, 2023, in Kinshasa. It involved 1170 female respondents, aged 18 to 65, who agreed to take part in the survey. Data were collected using a pre-established questionnaire. Data analysis was performed using SPSS software version 20.0. The study variables were socio-demographics, morbid history, knowledge, attitudes and practices of respondents regarding breast cancer. Statistical measures and tests used were Mean ± standard deviation, median, proportions, logistic regression Backward stepwise and $p < 0.05$. **Results:** 60% had insufficient knowledge, 75% had negative attitudes and 80% had non-beneficial practices. The risk factors common to insufficient knowledge, negative attitudes and non-beneficial practices towards breast cancer were low level of education, membership of revivalist or Muslim churches, and primiparity. Conclusion: 60% of Congolese women in Kinshasa have insufficient knowledge about breast cancer, 75% have negative attitudes and 80% have non-beneficial practices, with a positive association between insufficient knowledge and negative attitudes on the one hand, and insufficient knowledge and non-beneficial practices on the other. In this context, increasing the population's literacy and access to information are essential.

Keywords

Knowledge, Attitudes, Practices, Breast Cancer, Congolese Woman in Kinshasa

1. Introduction

Breast cancer is a malignant tumour that develops in the mammary gland [1].

Its incidence, already high in the 1970s, is still rising in both developed and developing countries [2]. Between 1975 and 2000, incidence rose by between 0.5% and 1.5% in many countries [3]. In Asia and China in particular, this increase has reached 3% to 5% per year over the last three decades [4]. In Europe, the highest levels of incidence are observed in Western European countries, in contrast to Eastern European countries [5]. In Africa, taking current trends into account, the number of new cases of breast cancer is expected to double by 2040 [6].

Its management, particularly clinical management, requires high-quality, long-term medical care adapted to its chronic nature and metastatic potential. Among many prognostic factors, the clinical stage of the tumor at diagnosis is one of the most important determinants of post-treatment outcome, whatever the technical platform [7]. The average cost of this treatment, estimated at $1000 per patient every three weeks, represents a considerable financial burden for healthcare systems, patients and their families [8], especially in developing countries. Since 2020, breast cancer has become the leading cause of cancer mortality worldwide [9].

Faced with this problem, the international community, through the WHO, has observed that to guarantee women's health in the face of breast cancer, the fight must be waged through two essential measures: mass screening and early diagnosis and treatment [10]:

- For mass screening, the standard tripod recommended is the clinical breast examination, combined with breast ultrasound and mammography [11].

- As for early diagnosis and treatment, women should examine their own breasts regularly, and consult their doctor immediately in the event of any abnormality [12].

Given that the first measure requires financial outlay for the acquisition of screening tools [8], particular emphasis is placed on women's effective participation in their own destiny in the face of breast cancer through the second measure, which entails no financial outlay. So far, however, this recommendation does not seem to have been fully taken on board, given the continuing high incidence of late-stage breast cancer at diagnosis, especially in developing countries.

In the DRC, breast cancer mortality is also high [13]. To explain this level of mortality, Espina C *et al.* [14] cite the late arrival of patients in the advanced

stages of their disease, without saying whether this was due to ignorance or environmental obstacles, and deplore the limitations associated with care due to a rudimentary technical platform, precarious economic conditions and the absence of a health insurance system.

Several other studies on breast cancer have been carried out in the DRC, and numerous aspects have been addressed. However, to date, no study assessing the knowledge, attitudes and practices of Congolese women with regard to breast cancer is available, and is likely to justify their behavior in the face of this cancer, understand their late consultations and help refine strategies to reduce its mortality, even though the national strategic plan to combat cervical and breast cancers [15] deplores the lack of information on these two cancers since 2015.

Bearing in mind the above-mentioned characteristics, we felt it appropriate to initiate the present study with the aim of assessing the knowledge, attitudes and practices of Congolese women in Kinshasa regarding breast cancer.

2. Methods

Our cross-sectional descriptive study with analytical aims based on a mixed method (qualitative and quantitative) was conducted in the city of Kinshasa from June to September 2023.

Our sampling is of the 3-stage cluster probability type.

- First stage: 8 communes were drawn at random from the 24 communes of the city of Kinshasa, with 2 communes per district,
- 2nd stage: 2 districts per commune were randomly selected, for a total of 16 districts,
- 3rd stage: 4 avenues per district were randomly selected, for a total of 64 avenues,
- Avenues: with the sampling step, 15 to 20 plots per avenue were retained, given that not all avenues had the same number of plots. A total of 1152 plots were included in the study. When a plot was uninhabited or inaccessible for an obvious reason, it was replaced by the next plot.

To minimize information bias, interviewers were recruited, trained, tested and selected based on their performance, a pre-test of the questionnaire was carried out, collection forms were checked daily by the person in charge of the survey, and incomplete or badly filled-in forms were discarded.

The sample size was calculated using the following formula:

$$n \geq \frac{Z^2 Pq}{d^2}$$

n = minimum sample size.

Z = 1.96 (95% confidence coefficient).

P = 0.6 (proportion of women who performed breast self-examination).

d = 0.05 (degree of precision).

The sample size was 386 women. This sample size was increased by 30% to

499%.

However, to obtain as much information as possible and increase the accuracy of statistical tests, the sample size was increased to 1170 by interviewing at least one person meeting our inclusion criteria in each plot.

2.1. Inclusion Criteria

In this study, we included Congolese women living in Kinshasa, aged 18 to 65, who agreed to participate freely in the study.

2.2. Non-Inclusion Criteria

Women under 18 or over 65, healthcare personnel, and women who refused to participate in the study.

Statistical analyses: the T student test was used for the comparison of means, while the chi-square test was used for the comparison of proportions and Backward step-wise logistic regression to determine associations. The significance level was set at $P \leq 0.05$.

2.3. Data Collection

Data were collected using an online questionnaire designed on kobocollect. https://ee.kobotoolbox.org/single/ea763d1799a8e392dee1649ffc09f059.

2.4. Study Variables

Our variables of interest were sociodemographic, disease history, knowledge, attitudes and practices.

2.5. Evaluation Plan for Dependent Variables (Knowledge, Attitudes, and Practices)

2.5.1. Knowledge of Breast Cancer

To identify knowledge, we asked each respondent twelve main questions, each coupled with a secondary question to check the consistency between the answer given to the secondary question and the main question. These questions are summarized in the table. Knowledge was considered accurate if it was consistent, and erroneous if it was not.

➢ Assessment of knowledge levels

- For each correct answer, the score equals 1. Otherwise, the score equals 0.
- Thus, the total points to be earned by each respondent on the twelve pairs of questions each had to answer equals 12.
- Based on this principle, the different levels of knowledge into which each respondent was to be placed according to her score are:

✓ Insufficient knowledge of breast cancer if the score varied from 0 to 6:

- Poor knowledge for a total score of 0 to 3 points,
- Limited knowledge for a total of 4 to 6 points.

✓ Sufficient knowledge of breast cancer if score ranged from 7 to 12.

- Good knowledge for a total of 7 to 9 points.
- Very good knowledge for a total of 10 to 12 points.

✓ To facilitate and simplify statistical calculations, we have divided the respondents into two groups: those with insufficient knowledge and those with sufficient knowledge.

➢ Identification of factors associated with knowledge

At this stage, we began by comparing the profile of respondents with insufficient knowledge with that of respondents with sufficient knowledge about breast cancer, and then looked for factors associated with insufficient knowledge.

2.5.2. Attitudes about Breast Cancer

➢ Identifying attitudes

The ten questions asked of each respondent to identify attitudes are presented in the table below.

➢ Assessment of attitude levels

■ An attitude was considered positive and rated 1 if it could be justified by validated theoretical data on breast cancer. Otherwise, it was rated 0.

■ Thus, the total points to be earned by each respondent on the ten questions equals 10.

✓ Based on this principle, the different levels of attitude considered are: Negative attitude if the rating goes from 0 to 5.

- Very negative attitude for a total of points from 0 to 2.
- Fairly negative attitude for a total of points from 3 to 5.

✓ Positive attitude for ratings of 6 to 10 points.

- Reasonably positive attitude for a total of 6 to 8 points.
- Very positive attitude for a total of 9 to 10 points.

■ To facilitate and simplify statistical calculations, we have dichotomized the respondents into two groups: a first group, those with negative attitudes, and a second group, those with positive attitudes.

➢ Identification of factors associated with attitudes

At this stage we began by comparing the profile of respondents with negative attitudes to that of respondents with positive attitudes about breast cancer, and then looked for factors associated with negative attitudes.

2.5.3. Breast Cancer Practices

➢ Identification of practices:

The four questions asked of each respondent to identify practices are presented in the table below:

➢ Assessment of practice levels:

• The practice was judged beneficial and rated 1 if it was not contradicted by validated theoretical data on breast cancer. Otherwise, it was rated 0.

• Thus, the total points to be gained by each respondent on the four questions asked about practices is equal to 4.

• Based on this principle, the different levels of practices considered are:

- ✓ Non-beneficial practices on breast cancer if the score is 0 to 2.
- Inadequate practices for a total score of 0 to 1.
- Borderline practices for a total score of 2.
- ✓ Practices beneficial to breast cancer if rated 3 to 4.
- Acceptable practices for a total of 3 ratings.
- Adequate practices for a total score of 4.
- ✓ To facilitate and simplify statistical calculations, we have dichotomized the respondents into two groups: a first group with non-beneficial practices and a second group with beneficial practices.
- ➢ Identification of factors associated with practices

At this stage, we began by comparing the profile of respondents with non-beneficial practices with that of respondents with beneficial practices in relation to breast cancer, and then looked for factors associated with non-beneficial practices in relation to breast cancer.

2.6. Calculating Levels of Knowledge, Attitudes and Practices

We proceeded by establishing a rating scale to be obtained by the respondents, determining bounds by the median and then the quartile to obtain a percentage scale, and transforming the percentage scale into a qualitative ordinal scale.

This study was designed and financed by our own funds.

2.7. Ethical Considerations

This project has been prepared in accordance with the Declaration of Helsinki and has been approved by the Ethics Committee of the Department of Obstetrics and Gynecology of the University Clinics of Kinshasa.

3. Results

At the end of this survey, we recorded 1170 questionnaires which had fulfilled all the inclusion criteria. About socio-demographic characteristics (Table 1), the average age of the respondents was 41.12 ± 14.59 years. The most numerous were those aged 50 or over (42.4%), with secondary education (57%), shopkeepers (39.2%), followers of revivalist churches (51.4%) and living in the Tshangu district (41%).

About level of knowledge, an analysis of Table 2 reveals that 60% are insufficiently knowledgeable.

Referring to the factors associated with insufficient knowledge, Table 3 shows that the factors most strongly and positively associated with insufficient knowledge are: residence in the Tshangu district (aOR = 5.92; IC 95% 3.48 - 10.39; p = 0.001), primary education (aOR = 3.71; IC 95% 2.20 - 6.34; p = 0.001), membership of revivalist churches (aOR = 2.40 IC 95% 1.43 - 4.07; p = 0.00), unemployment (aOR = 4.96; IC 95% 2.80 - 9.20; p = 0.001), nulliparity (aOR = 2.49; IC 95% 1.72 - 3.63; p = 0.001) and absence of breastfeeding (aOR = 1.668; IC 95% 1.237 - 2.249; p = 0.000).

Table 1. Socio-demographic characteristics of breast cancer respondents.

Variables	Headcount	%
Age (in years)		
41 ± 15 years		
<30 years	359	30.6
30 - 49 years	314	26.8
≥50 years	497	42.4
Levels of education		
Primary	235	20.0
Secondary	665	56.8
Higher education	270	23.0
Profession		
Business	459	39.2
Unemployment:	288	24.6
Civil servant	245	20.9
Private sector	106	9.0
Farming	72	6.1
Religion		
Catholic	177	15.1
Protestant	168	14.3
Kimbanguist	131	11.1
Muslim	92	7.8
Revivalist	602	51.4
Adress		
Funa	184	15.7
Mont Amba	191	16.3
Tshangu	479	40.9
Lukunga	316	27.0

Table 2. Level of knowledge about breast cancer.

Knowledge levels	Headcount	%
sufficient	469	40.1
insufficient	701	59.9
Total	1170	100

In terms of attitudes, this study shows that 74.4% of respondents' attitudes towards breast cancer were negative (Table 4).

Table 3. Factors associated with insufficient knowledge.

Variables	breast cancer knowledge		Cross OR (IC 95%)	p	Adjusted OR (IC 95%)	p
	insufficient (n = 701)	sufficient (n = 469)				
Age (years)						
≥50	272	225	1		1	
30 - 49	199	115	0.226 (0.176 - 0.293)	0.008	0.65 (0.44 - 0.96)	0.031
<30	230	129	1.585 (0.947 - 2.527)	0.079	1.34 (0.94 - 1.91)	0.108
Adress						
Lukunga	246	203	1		1	
Funa	139	76	1.664 (1.466 - 1.888)	0.079	1.12 (0.82 - 1.53)	0.489
Mont -amba	156	87	1.117 (0.939 - 1.328)	0.324	1.98 (1.08 - 3.68)	0.028
Tshangu	166	103	1.208 (0.614 - 1.194)	0.000	5.92 (3.48 - 10.39)	0.001
Level of education						
Higher	97	100	1		1	
Secondary	218	63	1.186 (1.002 - 1.404)	0 .413	0.91 (0.63 - 1.31)	0.599
Primary	386	306	1.586 (0.947 - 2.587)	0.000	3.71 (2.20 - 6.34)	0.001
Religion						
Catholic	190	112	1		1	
Revival	252	146	1.774 (0.38 - 8.093)	0.234	2.40 (1.43 - 4.07)	0.001
Muslim	63	53	0.262 (0.617 - 1.897)	0.006	1.95 (1.09 - 3.49)	0.024
Kimbanguist	57	33	1.692 (1.134 - 2.526)	0.001	1.82 (1.09 - 3.03)	0.022
Protestant	139	125	0.844 (0.342 - 2.443)	0.042	1.02 (0.63 - 1.66)	0.933
Profession						
Civil servant	225	33	1		1	
Unemployment	195	50	1.009 (0.712 - 1.436)	0.006	4.96 (2.80 - 9.20)	0.001
Private trader	71	35	1.206 (0.679 - 2.119]	0.531	1.53 (0.90 - 2.28)	0.356
Business	355	104	2.224 (1.134 - 4.362)	0.002	1.43 (0.99 - 2.07)	0.054
farmer	55	15	0.849 (0.476 - 1.533)	0.000	2.68 (1.56 - 4.64)	0.001
Parity						
Multipare	232	188	1		1	
Paucipare	188	74	0.456 (0.331 - 0.629)	0.000	1.63 (1.06 - 1.90)	0.008
Nullipare	281	207	1.142 (0.941 - 1.221)	0.646	2.49 (1.72 - 3.63)	0.001
Breastfeeding						
yes	528	392	1		1	
No	173	77	1.206 (1.091 - 1.332)	0.001	1.668 (1.237 - 2.249)	*0.000*
History of breast cancer						
Yes	230	168	1		1	
No	467	301	1.114 (0.871 - 1.424)	0.340	2.314 (0.946 - 4.035)	0.016

Table 4. Level of attitudes about breast cancer.

Attitude level	Number	Percentage
Positive	299	25.6
Negative	871	74.4
Total	1170	100

Table 5 shows that the factors most strongly and positively associated with negative attitudes are age < 30 years (aOR = 6.66; CI 95% 4.42 - 10.15; p = 0.001), living in Tshangu (aOR = 9.34; CI 95% 4.02 - 23.75; p = 0.001), primary education (aOR = 5.77; CI 95% 2.94 - 11.69; p = 0.001), belonging to the Muslim religion (aOR = 5.83; CI 95 2.83 - 10.25; p = 0.001), occupation as a farmer (aOR = 8.29; CI 95% 3.93 - 18.46; p = 0.001), nulliparity (aOR = 2.61; CI 95% 1.37 - 4.98; p = 0.003), absence of breastfeeding (aOR = 3.86; CI 65% 5.84 - 36.85; p = 0.001) and insufficient knowledge of breast cancer (aOR = 3.98; CI 95% 2.43 - 5.48; p = 0.001).

Table 5. Factors associated with negative attitudes.

Variables	Attitudes		CROSS OR (IC 95 %)	p	Adjusted OR (IC 95%)	p
	Negative (n = 871)	Positive (n = 299)				
Age (years)						
≥50	339	158	1		1	
30 - 49	257	57	1.52 (1.12 - 2.07)	0.007	0.55 [0.34 - 0.88]	0.013
<30	275	84	2.10 (1.49 - 2.96)	0.000	6.66 [4.42 - 10.15]	0.001
Adress						
Lukunga	246	97	1		1	
Funa	139	76	1.07 (0.82 - 1.39)	0.609	5.10 (2.64 - 10.14)	0.001
Mont -amba	156	87	1.05 (0.86 - 1.28)	0.018	0.93 (0.64 - 1.38)	0.731
Tshangu	330	39	1.05 (0.86 - 1.02)	0.000	9.34 (4.02 - 23.75)	0.001
Level of education						
Higher	95	49	1		1	
Secondary	221	110	1.009 (0.71 - 1.43)	0.002	1.55 (1.02 - 2.37)	0.043
Primary	555	140	2.908 (1.75 - 4.80)	0.000	5.77 (2.94 - 11.69)	0.001
Religion						
Catholic	160	19	1		1	
Revival	456	146	3.01 (1.76 - 5.13)	0.000	2.36 (1.45 - 3.92)	0.001
Muslim	47	45	0.30 (0.19 - 0.48)	0.000	5.83 (2.83 - 10.25)	0.001
Kimbanguist	76	55	1.26 (0.82 - 1.92)	0.278	4.17 (2.22 - 7.94)	0.003
Protestant	134	34	0.44 (0.29 - 0.65)	0.000	1.94 (1.10 - 3.45)	0.024

Continued

Profession						
Civil servant	183	62	1		1	
Unemployment	246	42	1.47 (0.87 - 2.50)	0.149	1.92 (1.10 - 3.37)	0.023
private sector	63	43	0.98 (0.58 - 1.65)	0.958	1.36 (0.65 - 2.81)	0.411
Business	318	121	0.45 (0.24 - 0.83)	0.012	2.58 (1.54 - 4.09)	0.001
farmer	61	11	0.73 (0.44 - 1.21)	0.233	8.29 (3.93 - 18.46)	0.001
Parity						
Multipare	175	87	1		1	
Paucipare	397	91	0.81 (0.58 - 1.13)	0.225	1.35 (0.83 - 2.21)	0.235
Nullipare	299	121	1.76 (1.29 - 2.40)	0.000	2.61 (1.37 - 4.98)	0.003
Breastfeeding						
yes	693	225	1		1	
No	178	74	1.23 (0.90 - 1.68)	0.185	3.86 (5.84 - 36.85)	0.001
History of breast cancer						
Yes	579	189	1		1	
No	282	110	1.03 (0.96 - 1.11)	0.305	2.60 (0.56 - 3.51)	0.040
knowledge						
sufficient	90	379	1		1	
insufficient	147	554	0.89 (0.66 - 1.20)	0.458	3.98 (2.43 - 5.48)	0.001

80% of respondents' breast cancer practices were non-beneficial (Table 6).

Table 6. Level of practices on breast cancer.

Practices	number	Percentage
Beneficial	235	20.3
No beneficial	933	79.7
Total	1170	100

With regard to factors associated with non-beneficial breast cancer practices, Table 7 shows that the factors most strongly and positively associated with respondents' non-beneficial breast cancer practices are secondary education (aOR = 2.06; 95% CI 1.33 - 3.21; p = 0.001), membership of revivalist churches (aOR = 2.69, CI 95% 1.04 - 3.18, p = 0.038), nulliparity (aOR = 5.91, CI 95% 2.08 - 10.7, p = 0.001), absence of sporting activities (aOR = 1.51; CI 95% 1.33 - 1.69; p = 0.000) and insufficient knowledge of breast cancer (aOR = 1.64; CI 95 1.15 - 2.33; p = 0.006).

Table 7. Factors associated with non-beneficial practices.

Variables	Practices		CROSS OR (IC 95 %)	p	Adjusted OR (IC 95%)	p
	No beneficial (n = 933)	Beneficial (n = 237)				
Age (years)						
≥50	416	81	1		1	
30 - 49	224	90	1.15 (0.80 - 1.65)	0.425	0.72 (0.48 - 1.09)	0.078
<30	293	66	2.06 (1.46 - 2.90)	0.000	2.45 (0.95 - 6.02)	0.018
Level of education						
Higher	207	63	1		1	
Secondary	563	102	1.42 (1.32 - 1.53)	0.000	2.06 (1.33 - 3.21)	0.001
Primary	163	72	3.17 (1.38 - 2.55)	0.001	1.54 (0.83 - 2.87)	0.173
Religion						
Catholic	145	32	1		1	
Revival	516	86	2.00 (1.18 - 3.37)	0.217	2.69 (1.04 - 3.18)	0.035
Muslim	69	23	1.32 (0.84 - 2.06)	0.000	1.78 (0.89 - 3.73)	0.105
Kimbanguist	81	50	3.70 (2.43 - 5.63)	0.000	1.98 (1.07 - 3.72)	0.031
Protestant	146	22	2.26 (1.15 - 3.40)	0.000	0.80 (0.42 - 1.49)	0.478
Profession						
Civil servant	195	50	1		1	
Unemployment	255	33	0.49 (0.25 - 0.96]	0.039	2.33 (0.94 - 4.56)	0.038
private sector	71	35	1.87 (0.93 - 3.76)	0.078	0.32 (0.18 - 0.57)	0.001
Business	355	104	1.11 (0.60 - 2.04)	0.730	0.54 (0.34 - 0.85)	0.007
farmer	55	15	0.53 (0.26 - 1.07)	0.079	0.51 (0.26 - 1.00)	0.052
Parity						
Multipare	326	94	1		1	
Paucipare	368	120	0.33 (0.20 - 0.54)	0.000		
Nullipare	239	23	1.13 (0.83 - 1.53)	0.434	5.91 (2.08 - 10.7)	0.001
History of breast cancer						
Yes	259	143	1		1	
No	674	94	1.86 (1.33 - 21.63)	0.001	3.95 (2.94 - 5.32)	0.062
Sporting activity						
yes	262	172	1		1	
No	671	65	6.77 (4.92 - 9.34)	0.000	1.51 (1.33 - 1.69)	0.000
Breastfeeding						
yes	705	215	1		1	
No	228	22	3.16 (1.98 - 5.02)	0.000	2.83 (0.19 - 0.24)	0.000
Knowledge						
Sufficient	90	379	1		1	
insufficient	147	554	0.89 (0.66 - 1.20)	0.458	1.64 (1.15 - 2.33)	0.006

4. Analysis

4.1. Sociodemographic Characteristics

The average age of respondents was 41 ± 15 years, and the majority had a secondary education (57%). This average is higher than the 22.7 ± 3.8 years found by Tchin Darre *et al.* in 2020 in Togo and the 20.26 ± 6.04 found by Codjo L.V. *et al.* [16] in 2023 in Benin.

We believe that this difference may be explained by the fact that our survey took place in the general population, whereas those of the two foreign studies took place in selective university environments generally frequented by younger, better-educated people.

Most of the respondents were shopkeepers (39%), practicing their faith in revivalist churches (51%), and living in the Tshangu district (40%). We believe that this particularity is because the sample faced the problem of employment, the personal orientation of religious beliefs and the demographic distribution in the city-province of Kinshasa.

4.2. Levels of Knowledge, Attitudes and Practices about Breast Cancer

Our study shows that only 40% of women have sufficient knowledge about breast cancer. This percentage is lower than those found by: Mena M *et al.* [17] in 2014 in Ghana (80%), Asmare *et al.* [18] in 2022 in Ethiopia (55%), but close to those found by, Gedif *et al.* [19] in 2013 in Ethiopia (38%) and by Mamdouh *et al.* [20] in 2014 in Egypt, (48%), Mahfouz *et al.* [21] in 2017 in Saudi Arabia (47%).

Our study also shows that 75% of female respondents have negative attitudes towards breast cancer. This result is comparable to that found by Wright *et al.* [22] in 2013 in South Africa (68%), and Margueritta *et al.* [23] in 2018 in Lebanon (72%), but far lower than those found by: Tieng'o *et al.* [24] in 2011 in Botswana (86%), Bouslah *et al.* [25] in 2014 in Tunisia (93.0%), and Nouessewah *et al.* [26] in 2021 in Benin (93.0%).

Finally, our study shows that 80% of women surveyed have non-beneficial breast cancer practices. This result is in line with that of Tabrizi *et al.* [27] in 2019 in Kenya, who reported that 72% of women admit to never having had breast examinations and do not plan to have breast ultrasounds or breast self-examination. This contrasts with those of Habib *et al.* [28] in 2010 in Saudi Arabia, and kratzke *et al.* [29] in 2013 in the USA. These two studies respectively found that 61% and 75% of women have positive breast cancer practices.

Based on the data available in the literature, all the above results and their differences are attributable to two essential factors, one environmental and the other hereditary, in addition to fluctuations in sampling and the populations to be evaluated.

As far as environmental factors are concerned, these are most often the collective imagination, which tends to relegate breast cancer to the category of myste-

rious, incurable diseases due to a family curse, the harmful influence of certain sectarian teachings, inadequate education, inefficient health systems and difficulties in accessing sources of information, etc., all of which often give rise to risky behaviour.

As for hereditary factors, these include a personal or family history of breast cancer, which can make people more risk averse.

4.3. Factors Associated with Negative Attitudes and Non-Beneficial Practices

Insufficient knowledge:

The present study shows a positive association between insufficient knowledge and negative attitudes on the one hand, and insufficient knowledge and non-beneficial practices on the other.

Since attitudinal deficits have a greater impact on psycho-social equilibrium in relation to breast cancer, we have chosen to discuss only the relationship between insufficient knowledge and non-beneficial practices in relation to breast cancer. Indeed, in view of this aspect, our results are in line with those of other studies, notably those by:

- Solikhah *et al.* [30] in 2021 in Indonesia, who found that women with a good knowledge of breast cancer presented more easily for screening,

- Asadi *et al.* [31] in 2018 in Tehran found that, knowledge of the risk, signs and symptoms of breast cancer is a determinant of participation in breast cancer screening,

- Agbokey *et al.*, [32] in 2019 in Ghana, found that, women's inadequate knowledge of breast cancer, combined with widespread misconceptions about the disease, led instead to low uptake of screening programs.

5. Conclusions

Using a descriptive study with an analytical aim applied to a sample of 1170 respondents selected by a 3-stage cluster sampling in the city province of Kinshasa, the results obtained allow us to draw the following conclusions:

- There is a great diversity of knowledge, attitudes and practices regarding breast cancer among Congolese women in Kinshasa.

- Despite this diversity, this knowledge is erroneous at 60%, attitudes are negative at 75% and practices are not beneficial at 80%.

6. Authors' Contribution

All authors contributed to the design, collection and analysis of data as well as the presentation of the final manuscript.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

References

[1] Bombonati, A.D.C. (2011) The Molecular Pathology of Breast Cancer Progression. *Pathology*, **223**, 307-317.

[2] Parkin, D.M., Pisani, P. and Ferlay, J. (1993) Estimates of the Worldwide Incidence of Eighteen Major Cancers in 1985. *International Journal of Cancer*, **54**, 594-606. https://doi.org/10.1002/ijc.2910540413

[3] Ferlay, J., Soerjomataram, I., Dikshit, R., (2013) Cancer Incidence and Mortality in the World.

[4] Gupta, P., Rai, N.N., Agarwal, L. and Namdev, S. (2018) Comparison of Molecular Subtypes of Carcinoma of the Breast in Two Different Age Groups: A Single Institution Experience. *Cureus*, **10**, e2834. https://doi.org/10.7759/cureus.2834

[5] Törnberg, S., Carstensen, J., Hakulinen, T., *et al.* (1994) Evaluation of the Effect of Population-Based Mammography Screening Programs on Breast Cancer Mortality. *Journal of Medical Screening*, **1**, 184-187.

[6] Adeloye, D., Sowunmi, O.Y., Jacobs, W., David, R.A., Adeosun, A.A., Amuta, A.O., *et al.* (2018) Estimating the Incidence of Breast Cancer in Africa: A Systematic Review and Meta-Analysis. *Journal of Global Health*, **8**, Article ID: 010419. https://doi.org/10.7189/jogh.08.010419

[7] Hortobagyi, G.N., Ames, F.C., Buzdar, A.U., Kau, S.W., McNeese, M.D., Paulus, D., *et al.* (1988) Management of Stage III Primary Breast Cancer with Primary Chemotherapy, Surgery, and Radiation Therapy. *Cancer*, **62**, 2507-2516. https://doi.org/10.1002/1097-0142(19881215)62:12<2507::aid-cncr2820621210>3.0.co;2-d

[8] Aka Kacou, E., Akani Bangaman, C., Zoua Kakou, A.C. *et al.* (2022) Analysis of the Direct Economic Cost of Breast Cancer in Côte D'Ivoire in 2022. *African Journal of Social Sciences and Public Health*, **5**, 8.

[9] Sung, H., Ferlay, J., Siegel, R.L., Laversanne, M., Soerjomataram, I., Jemal, A., *et al.* (2021) Global Cancer Statistics 2020: GLOBOCAN Estimates of Incidence and Mortality Worldwide for 36 Cancers in 185 Countries. *CA*: *A Cancer Journal for Clinicians*, **71**, 209-249. https://doi.org/10.3322/caac.21660

[10] World Health Organization (2021) New Global Initiative on Breast Cancer Highlights Renewed Commitment to Improve Survival. https://www.who.int/news/item/08-03-2021-new-global-breast-cancer-initiative-highlights-renewed-commitment-to-improve-survival

[11] (2017) Practice Bulletin Number 179: Breast Cancer Risk Assessment and Screening in Average-Risk Women. *Obstetrics & Gynecolog*, **130**, e1-e16.

[12] World Health Organization (2017) WHO Guide to the Early Diagnosis of Cancer. https://www.who.int/publications/i/item/guide-to-cancer-early-diagnosis

[13] Mbala, K., Tozin, R., Mbala, L., *et al.* (2019) Epidemio-Clinical and Molecular Profile of Breast Cancer in Kinshasa-D.R. City Hospitals, Congo. *Kisangani Médical*, **9**, 2-6.

[14] Espina, C., McKenzie, F. and dos-Santos-Silva, I. (2017) Delayed Presentation and Diagnosis of Breast Cancer in African Women: A Systematic Review. *Annals of Epidemiology*, **27**, 659-671.e7. https://doi.org/10.1016/j.annepidem.2017.09.007

[15] (2015) National Strategy for the Fight Against Cervical and Breast Cancers in the Democratic Republic of Congo.

[16] Brun, L.V.C., Béhanzin, L., Togbenon, N.D.L., Pognon, M.A.O.B., Houéhanou-Sonou, Y.C.N., Atadé, S.R., *et al.* (2023) Knowledge, Attitudes and Practice Regarding

Breast Cancer among Parakou University Female Students in 2021. *Open Journal of Pathology*, **13**, 28-39. https://doi.org/10.4236/ojpathology.2023.131003

[17] Mena, M., Wiafe-Addai, B., Sauvaget, C., Ali, I.A., Wiafe, S.A., Dabis, F., *et al.* (2013) Evaluation of the Impact of a Breast Cancer Awareness Program in Rural Ghana: A Cross-sectional Survey. *International Journal of Cancer*, **134**, 913-924. https://doi.org/10.1002/ijc.28412

[18] Asmare, K., Birhanu, Y. and Wako, Z. (2022) Knowledge, Attitude, Practice Towards Breast Self-Examination and Associated Factors among Women in Gondar Town, Northwest Ethiopia, 2021: A Community-Based Study. *BMC Women's Health*, **22**, Article No. 174. https://doi.org/10.1186/s12905-022-01764-4

[19] Legesse, B. and Gedif, T. (2014) Knowledge on Breast Cancer and Its Prevention among Women Household Heads in Northern Ethiopia. *Open Journal of Preventive Medicine*, **4**, 32-40. https://doi.org/10.4236/ojpm.2014.41006

[20] Mamdouh, H., El-Mansy, H., Kharboush, I., Ismail, H., Tawfik, M., El-Baky, M., *et al.* (2014) Barriers to Breast Cancer Screening among a Sample of Egyptian Females. *Journal of Family and Community Medicine*, **21**, 119-124. https://doi.org/10.4103/2230-8229.134771

[21] Mahfouz, E., Amany, E., Hassan, A., *et al.* (2017) Awareness about Breast Cancer and Its Screening among Rural Egyptian Women, Minia District: A Population-Based Study. *Asian Pacific Journal of Cancer Prevention*, **18**, 1623-1628. https://doi.org/10.22034/APJCP.2017.18.6.1623

[22] Maree, J., Wright, S. and Lu, X. (2013) Breast Cancer Risks and Screening Practices among Women Living in a Resource Poor Community in Tshwane, South Africa. *The Breast Journal*, **19**, 453-454. https://doi.org/10.1111/tbj.12143

[23] El Asmar, M., Bechnak, A., Fares, J., *et al.* (2018) Knowledge, Attitudes and Practices Regarding Breast Cancer among Lebanese Women in Beirut. *Asian Pacific Journal of Cancer Prevention*, **19**, 625-631. https://doi.org/10.22034/APJCP.2018.19.3.625

[24] Tieng'o, J., Pengpid, S., Skaal, L. and Peltzer, K. (2011) Knowledge, Attitude and Practice of Breast Cancer Examination among Women Attending a Health Facility in Gaborone, Botswana. *Gender and Behaviour*, **9**, 3513-3527. https://doi.org/10.4314/gab.v9i1.67455

[25] Bouslah, S., Soltani, M.S., Ben Salah, A. and Sriha, A. (2014) Connaissances, attitudes et pratiques des femmes tunisiennes en matière de dépistage du cancer du sein et de celui du col de l'utérus. *Psycho-Oncologie*, **8**, 123-132. https://doi.org/10.1007/s11839-014-0460-8

[26] Hounkponou, N.F.M., Vodouhe, M., Klipkezo, R., Ahouingnan, Y., Agani, N., Mensah, C.E., *et al.* (2023) Factors Associated with Knowledge, Attitude, Practice of Women of Childbearing Age towards Gynecological and Breast Cancer in Glazoué, Benin in 2021. *Open Journal of Obstetrics and Gynecology*, **13**, 325-341. https://doi.org/10.4236/ojog.2023.132033

[27] Sayed, S., Ngugi, A.K., Mahoney, M.R., Kurji, J., Talib, Z.M., Macfarlane, S.B., *et al.* (2019) Breast Cancer Knowledge, Perceptions and Practices in a Rural Community in Coastal Kenya. *BMC Public Health*, **19**, Article No. 180. https://doi.org/10.1186/s12889-019-6464-3

[28] Alsaif, A.A. (2010) Breast Self-Examination among Saudi Female Nursing Students in Saudi Arabia. *Saudi Medical Journal*, **25**, 1574-1578.

[29] Kratzke, C., Vilchis, H. and Amatya, A. (2013) Breast Cancer Prevention Knowledge, Attitudes, and Behaviors among College Women and Mother-Daughter Commu-

nication. *Journal of Community Health*, **38**, 560-568. https://doi.org/10.1007/s10900-013-9651-7

[30] Solikhah, S., Lianawati, L., Matahari, R., *et al.* (2019) Determinants of Awareness and Participation in Cancer Screening among Indonesian Women. *Asian Pacific Journal of Cancer Prevention*, **20**, 877-884.

[31] Falah Asadi, A., Shahsavari, S., Khosravizadeh, O. and Nourmohammadi, M. (2018) The Relationship between Knowledge, Attitude, and Performance in Breast Cancer with Nutritional Behaviors and Drug Use. *Asian Pacific Journal of Environment and Cancer*, **1**, 27-33. https://doi.org/10.31557/apjec.2018.1.1.27-33

[32] Agbokey, F., Kudzawu, E., Dzodzomenyo, M., Ae-Ngibise, K.A., Owusu-Agyei, S. and Asante, K.P. (2019) Knowledge and Health Seeking Behaviour of Breast Cancer Patients in Ghana. *International Journal of Breast Cancer*, **2019**, Article ID: 5239840. https://doi.org/10.1155/2019/5239840