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Research Article

Knowledge, Attitudes and Practices of Breast Self-Examination Among Women Aged 35 to 65 Years in the Commune of Mbour (Senegal)

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Abstract

Introduction: Breast cancer is second only to cervical cancer in Senegal. It has a high mortality rate because of its late diagnosis and the inadequacy and availability of treatment. In countries with limited resources, breast self-examination is still a means of early diagnosis of breast cancer. The aim of the study was to assess knowledge, attitudes and practice of BSE in the commune of Mbour. Methods: This was a descriptive and analytical cross-sectional study that took place from 01 to 30 July 2022 in the commune of Mbour. The study population consisted of women aged 35 to 65 years who had been living in the study area for more than three months. Sampling was carried out using a two-stage cluster survey. Results: A total of 599 women were surveyed. The average age of the women was 44.3 years. Educated women represented 56.3% of the sample. Married women accounted for 81.4% of the sample and those engaged in an income-generating activity 64.9%. The overall level of knowledge was average, with 57.9% correctly answering questions about breast cancer and breast self-examination. The most frequent sources of information are the media, with television (77.1%), radio (53.4%) and written media (35.2%). Health professionals are also an important source of information, with 43.9% of women informed by this source. Overall, 78.5% (471) of the women surveyed had the 'right' attitude and 20.9% the 'wrong' attitude. We noted in the series that 10.9% (65) of women performed breast self-examination adequately according to the recommended technique. However, 22.7% (136) of women performed BSE inadequately. The practice of BSE was higher in women over 50 (72.3%) than in women under 50, with a statistically significant difference (p<0.05). It is noted that women's level of education had a significant influence (p<0.05) on the practice of BSE, with 69.2% of women who practiced BSE being educated. In contrast, women's marital status and the exercise of income-generating-activity among women had no influence on the practice of BSE. Conclusion: In order to improve the practice of breast self-examination, it is important to strengthen communication aimed at women through the media and healthcare personnel.

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1. Introduction

Breast cancer, the most common cancer in the world in terms of incidence, is also the most frequent cause of cancer-related death in women [1]. However, in Senegal, as in most countries with limited resources, it is second only to cervical cancer.

The majority of breast cancers occur in developed countries. Unfortunately, over 50% of deaths are in resource-poor countries. This high mortality in these countries is due to diagnostic and therapeutic difficulties [2].

In fact, most breast cancers are discovered at a late stage, making the prognosis even worse [3-5].

Unlike developed countries, countries with limited resources do not have the usual means of screening and early diagnosis, such as mammography and ultrasound, available throughout the country at affordable prices. Given this economic context, these countries also rely on breast self-examination (BSE) and clinical breast examination as means of screening and early diagnosis, which are simple, inexpensive methods with proven effectiveness [1, 6, 7].

Breast self-examination is one of the best methods of detecting breast cancer in developing countries, where access to other screening methods such as mammography, ultrasound and clinical breast examination are less accessible and unaffordable for the majority of the population. It is simple to perform, self-administered and free of charge, which is why it is preferable to use it in areas with limited resources [7-10]. In addition, BSE encourages women to take primary responsibility for their own health [6, 10]. The practice of BSE is still insufficient in Sénégal, where the fight against cancers in general is slow to intensify [8].

It therefore felt it necessary to conduct this study, the aim of which was to assess the knowledge, attitudes and practice of self-examination among women aged between 35 and 65 years in the commune of Mbour.

2. Framework and Methodology

2.1. Framework of the Study

Located 83 km south-west of Dakar, the town of Mbour is the capital of the department of the same name. It has a population of 2,964,746, including 6,937 women of reproductive age. The town covers an area of 1,725 hectares. Islam is by far the most represented religion, with 94% of the population.

Mbour has a large number of health facilities. In the public sector, there is a level 1 departmental hospital, a health center and 11 public health posts. In the private sector, there are 4 clinics, 5 doctors' surgeries, 3 dental surgeries and 8 treatment centers.

There are 10 services outlets offering reproductive health services (prenatal and postnatal consultations, family planning, childbirth, etc.), including three that can perform surgery and medical imaging (ultrasound and mammography).

2.2. Methodology

1. Type and population of study

This descriptive and analytical cross-sectional study took place from 01 to 30 July 2022 in the commune of Mbour.

The study population consisted of women aged between 35 and 65 years, who had been living in the study area for more than three months.

The survey units are the concessions that make up the study area. The women aged 35 to 65 years in the study area represent the statistical units.

Women aged 35 to 65 years who had lived in Mbour for more than three months were included in the study. Non-consenting women who were absent after two visits by the interviewers were excluded from the study.

2. Sampling

The sampling method used is the cluster survey which takes place in several stages: establishment of the list of neighborhoods in the area of responsibility; division of each neighborhood into one or two distribution districts according to the size of its population; determination of the first concession by the bottle method; and survey in each concession with a sampling step of 5 of all women meeting the inclusion criteria.

The sample size was calculated using the Schwartz formula [$n=ez^2 p(1-p)/i2$] with: n (sample size); e (cluster effect =1.5); z (smallest deviation=1.96 for a first order risk α=0.05); p (prevalence of screening among women of reproductive age, p being unknown so p = 50%); q (complement of p; q=1-p); and i (desired precision 5%).

The sample size was 576, rounded to 600. It was possible to form 30 clusters. In each cluster, 20 women were recruited.

3. Data collected

Data was collected through individual interviews. Infor-

mation's was collected using a questionnaire administered in the women's homes by trained interviewers.

The variables studied were

1) dependent or explanatory variables: knowledge (symptoms of the disease, risk factors for the disease, breast self-examination technique, other means of screening, screening sites, curability of the disease), attitudes (to signs of the disease and BSE), and practices of women aged 35 to 65 who had been living in the study area for more than three months;

2) independent or explanatory variables: socio-demographic characteristics (age, level of education, marital status, income-generating activity) and sources of information.

Based on the Essi model, the level of knowledge was quantified. The level of knowledge is classified into 4 levels (poor, insufficient, average and good) [11]:

1) less than 25% correct answers = poor
2) 50% correct answers = insufficient
3) between 50 and 70% correct answers = average
4) more than 70% correct answers = good

The analysis grid for attitudes was based on four criteria (right, approximate, wrong and harmful).

The analysis of the practice of breast self-examination was established in three levels (harmful, inadequate and adequate).

In this study, women with any level of formal schooling were considered educated.

Knowledge of breast self-examination was assessed, based on a description of the technique [8].

4. Data analysis

Univariate analysis was based on a description of the data (mean, frequency, standard deviation, etc.).

Bivariate analysis was performed using the Chi2 test of independence or Fisher's exact test if the conditions for applying the Chi2 test were not met. The confidence interval was 95%, and a significant and independent relationship was established when the p-value was less than 0.05.

5. Ethical considerations

The health authorities authorized the study after reviewing the study protocol. Participation in the study was free and voluntary, with informed consent from the respondent. No prejudice or advantage was derived from participation or non-participation in the study. Data were collected anonymously and confidentially.

The results of the study were forwarded to the local health authorities.

6. Limitations of the study

One limitation of the study relates to the risk of sampling error. Cluster sampling is relatively more prone to high sampling error.

The study took place in the commune of Mbour, which is an urban area par excellence. Consequently, conclusions could not be generalized to rural areas.

3. Results

3.1. Descriptive Study

3.1.1. Socio-Demographic Characteristics of Respondents

The investigation was conducted on 599 women. The average age of the women was 44.3 years, with a standard deviation of 8.9. The youngest was 35 and the oldest 65.

The women had an average of 4.2 children; with a standard deviation of 2.3. Table 1 below summarizes the socio-demographic characteristics of the respondents.

Table 1. Distribution of respondents by socio-demographic characteristics (n=599).

Characteristics	n	%
Age		
< 50 yearss	421	70,3
≥ 50 years	178	29,7
Educational level		
Primary	218	36,4
Secondary	100	16,7
University	19	3,2
None	262	43,7
Marital status		
Unmarried	24	4,0
Married	487	81,4
Divorced	44	7,3
Widowed	44	7,3
Income-generating activities (IGA)		
Yes	389	64,9
No	210	35,1

Educated women represented 56.3% of the sample. The level of education ranged from primary (36.6%) through secondary (16.7%) to university (3.2%).

Married women accounted for 81.4% of the sample, and those engaged in income-generating activities 64.9%.

3.1.2. Knowledge of Breast Cancer and Breast Self-Examination

All the women surveyed had heard of breast cancer. Table 2 below shows the distribution of respondents according to their knowledge of breast cancer and breast self-examination.

Table 2. Distribution of respondents by knowledge of breast cancer and breast self-examination.

Knowledge areas	n	%	Knowledge level
Risk factors			
Yes	94	15,7	Bad (15,7%)
No	505	84,3	
Symptoms			
Yes	381	63,6	Average (63,6%)
No	218	36,4	
Means of screening			
None	188	31,4	
Self-examination	289	48,2	Average (68,6%)
Mammography	74	12,4	
Ultrasonography	48	8	
Testing site			
None	23	3,8	
Hospital	529	88,3	
Health center	189	31,6	Good (96,2%)
MNCHC*	125	20,9	
Health post	146	24,4	
Private facilities	162	27	
BSE technic			
Yes	201	33,5	Insufficient (33, 5%)
No	398	66,5	
Curability of the disease			
Yes	418	74,6	Average (69,8%)
No	181	25,4	

*Maternal, Newborn and Child Health Center

The overall level of knowledge was average, with 57.9% correct answers about breast cancer and breast self-examination.

3.1.3. Sources of Information

The most frequent sources of information were the media, with television (77.1%), radio (53.4%) and the written press (35.2%). Health professionals were also an important source of information, with 43.9% of women informed by this source.

3.1.4. Attitudes About Breast Cancer

Table 3 below summarizes the distribution of respondents according to their attitudes to breast cancer.

Table 3. Distribution of respondents according to attitudes about breast cancer (n=599).

Attitudes	n	%
Breast cancer symptoms		
Rignt (medical consultation)	589	98,3
Approximate (tradipratician)	6	1
Wrong (self-medication)	3	0,5
Harmful (inaction)	1	0,2

Attitudes	n	%
Breast self-examination		
Right (favourable)	352	58,8
Wrong (unfavourable)	247	41,2

When faced with the symptoms of the disease (lump, pain, discharge from the nipple, increase in breast volume, and change in the skin of the breast) 98.3% of women had the right attitude, stating that they went to the health facilities if any of the above symptoms appeared.

It is also noted that 58.8% of women were in favour of breast self-examination. The reasons given for the unfavourable attitude towards breast self-examination were ignorance, fear of discovering a serious illness, lack of motivation and laziness.

Overall, 78.5% of the women surveyed had the right attitude and 20.9% the wrong attitude.

3.1.5. Breast Self-Examination

It is noted in the series that 10.9% (65) of women performed breast self-examination adequately according to the recommended technique. However, 22.7% (136) of women performed BSE inadequately.

Of the 201 women who knew about self-breast examination, 65 performed it correctly, 91 often (once every 3 months), 40 rarely (once every 6 months) and 5 never.

There were many reasons why women who had never performed BSE did not do so. For 98.7% of them, the reason was lack of knowledge, 25.3% fear of knowing about their illness and 14.4% did not feel the need to practice BSE.

3.2. Analytical Study

This consists of identifying any links that may exist between socio-demographic characteristics and knowledge, attitudes and practices.

3.2.1. Factors Determining Knowledge

Table 4 below summarizes the results of the tests carried out to establish links between knowledge and socio-demographic factors.

Table 4. Links between knowledge and socio-demographic characteristics.

Knowledge area	Number and % of women knowing the item	P value
Women age < 50 years		
Risk factors	31 (33%)	< 0,05
Symptoms	287 (75,3%)	< 0,05
Means of screening	288 (70%)	NS
Testing site	415 (72%)	< 0,05
BSE technics	152 (75,6%)	< 0,05
Curability of the disease	317 (75,8%)	< 0,05
Educated women		
Risk factors	77 (82%)	< 0,05
Symptoms	265 (69,5%)	< 0,05
Means of screening	259 (63%)	< 0,05
Testing site	327 (56,8%)	NS
BSE technics	160 (79,6%)	< 0,05
Curability of the disease	229 (54,8%)	NS
Married women		
Risk factors	25 (26,6%)	< 0,05
Symptoms	310 (81,4%)	< 0,05
Means of screening	357 (86,9%)	< 0,05
Testing site	472 (81,9%)	NS
BSE technics	150 (74,6%)	< 0,05
Curability of the disease	359 (85,9%)	< 0,05
Women in income-generating activities		
Risk factors	42 (44,67%)	< 0,05
Symptoms	222 (58,3%)	< 0,05
Means of screening	298 (72,5%)	< 0,05
Testing site	378 (65,6%)	NS
BSE technics	120 (59,7%)	NS
Curability of the disease	248 (59,3%)	< 0,05

Age

Knowledge of risk factors was higher among women over 50 years (66%) than under 50 years (33%), with a statistically significant difference (p<0.05).

Women under 50 years were more aware of the symptoms of the disease (75.3%), where to go for breast cancer screening (72%), the BSE technique (75.6%) and the curability of the disease (75.8%) than women over 50 years, with a statistically significant difference (p<0.05).

There was no statistically significant difference in knowledge of screening methods between these two age groups of women.

Educational level

Educated women were more familiar with risk factors (82%), symptoms (69.5%), screening methods (63%) and the BSE technique than uneducated women, with a statistically

significant difference (p<0.05).

There was no statistically significant difference between educated and uneducated women in terms of knowledge of screening facilities and the curability of the disease.

Marital status

Knowledge of risk factors was higher among unmarried women (63.3%) than among married women (33%), with a statistically significant difference.

Married women were more aware of the symptoms of the disease (81.4%), screening methods (86.9%), the BSE technic (81.9%), and the curability of the disease (85.9%), with a statistically significant difference (p<0.05).

There was no statistically significant difference between married and unmarried women in terms of knowledge of screening sites.

Exercising an IGA

Knowledge of breast cancer risk factors was higher among women without an IGA (55.33%) than among women with an IGA, with a statistically significant difference (p<0.05).

On the other hand, there was no statistically significant difference between women with an IGA and women without an IGA in terms of knowledge of screening sites and SIA techniques.

Women with an IGA were more aware of the symptoms of the disease (58.3%), the means of screening for breast cancer (72.5%) and the curability of the disease, with a statistically significant difference (p<0.05).

3.2.2. Factors Determining Attitudes Towards the Practice of BSE

Table 5 below summarizes the results of the tests carried out to establish links between attitudes and socio-demographic factors.

Table 5. Links between attitudes and socio-demographic characteristics.

Attitude	Numbers and % of women with a fair attitude for BSE	P value
Age < 50 years	260 (73,9%)	< 0,05
Educated women	288 (81,8%)	< 0,05
Married women	291 (82,9%)	NS
Women in IGA	217 (61,6%)	< 0,05

Age, level of education and income-generating activities had a statistically significant impact on attitudes (p<0.05). Women aged under 50, who were educated and had income-generating activities, had a more favourable attitude towards breast self-examination.

3.2.3. Factors Determining the Practice of Breast Self-Examination

Table 6 below summarizes the results of the tests carried out to establish the links between breast self-examination and socio-demographic factors.

Table 6. Relationship between breast self-examination and socio-demographic characteristics.

Practice of BSE	Number and % of women performing BSE	P value
Age < 50 years	18 (27,7%)	< 0,05
Educated women	45 (69,2%)	< 0,05
Married women	51 (78,5%)	NS
Women in IGA	49 (75,4%)	NS

Women's age and level of education influenced the practice of BSE, with statistically significant differences (p<0.05). Women under the age of 50 and those with higher levels of education were more likely to perform breast self-examination.

4. Discussions

4.1. Knowledge

The overall level of knowledge was average, with 57.9% of respondents answering correctly about breast cancer and breast self-examination.

The study also showed that the level of knowledge of the women surveyed about risk factors was poor (15.7%), while their knowledge of symptoms, screening methods and the curability of the disease was average (63.6%, 68.6% and 69.8% respectively).

These results are similar to those found by Murad E et al in Addis Ababa in 2022, who noted that women's knowledge of risk factors, symptoms and screening methods was low [12].

In contrast, knowledge of SIA techniques was insufficient (33.5%) in the study. These results differ from those of Guèye SMK et al in 2009, who found in Dakar, Senegal, that 42.7% of the women surveyed had a good knowledge of the SEA technique [8]. This difference could be explained by the fact that the Guèye SMK study was carried out among women attending the major hospitals in Dakar, which constituted a significant sampling bias.

This lack of knowledge of the AES technique has been found in many studies in Africa [6-8, 12-15]. This can be explained by the inadequacy of health communication.

Knowledge of the curability of the disease is average, with 69.8% of women believing that the disease is curable. This shows that attitudes are changing, because a few decades ago, cancer was very often associated with certain death. Advances in oncology have undoubtedly helped to reverse this trend.

Knowledge of screening sites was good (96.2%). Almost all women were aware of the reproductive health service sites and naturally identified them as potential sites for screening for cancer of a reproductive organ.

The overall average level of knowledge is linked to the inadequacy of breast cancer communication activities aimed at the public. Although there is a national cancer control program in Senegal, activities to raise women's awareness are often carried out when they come into contact with reproductive health services; there are, however, rare information activities through the local media or community networks, which are often the result of initiatives by local associations. In fact, the program is cruelly lacking in resources and communication with the local population is often neglected.

This communication should take place mainly through the media (television, radio and written media) and health staff; these two channels being the main sources of information identified by women in the field of breast cancer.

Women's age had a significant (p<0.05) impact on their knowledge of risk factors, symptoms of the disease, screening sites, BSE techniques and the curability of the disease. Women under 50 were more aware of these factors. This was found in several studies carried out in Tunisia, Nigeria, Mali, Ethiopia and Iran [16-19]. Today's young people are better educated and more informed thanks to the development of the media and new information and communication technologies.

The level of education has a significant influence (p<0.05) on knowledge of symptoms, screening methods and the technique of SEA. Higher levels of education were associated with better knowledge of breast cancer. This has been found in almost all studies of BSE [12-17].

Marital status was significantly (p<0.05) associated with knowledge of breast cancer. Married women were more aware of the symptoms of the disease, the means of screening, the AME technique, and the curability of the disease, with a statistically significant difference. This was found by Asmar K in Ethiopia [17]. However, in the vast majority of studies in Africa, no significant association was found between marital status and good knowledge of breast cancer [12-16].

Having an income-generating activity has a significant influence on knowledge of breast cancer (p<0.05). Women with an IGA were more aware of the symptoms of the disease, ways of screening for breast cancer and the curability of the disease. However, there was no statistically significant difference between women with and without an IGA in terms of knowledge of screening sites and the BSE technic. Numerous African studies have found an association between working and good knowledge of breast cancer [13-16].

4.2. Attitudes

Women's overall attitude to the symptoms of the disease and the practice of breast self-examination is satisfactory, with 78.5% of women having the right attitude.

It was noted that 98.3% of the women surveyed preferred to go to a health facility when faced with symptoms of the disease (lump, pain, nipple discharge, increase in breast volume, change in the skin of the breast). This has been found in numerous studies [8, 12, 13, 15, 17-19].

It should be noted, however, that the good geographical accessibility of health facilities offering reproductive health services in the town of Mbour might have played a role in the development of attitudes favourable to breast cancer.

The study reveals that 58.8% of women have a favourable attitude to breast self-examination. These results are similar to those found in many African and Arab studies, where very favourable attitudes to breast cancer and breast self-examination were found [8, 12, 13, 15, 17-19].

However, efforts still need to be made in the field of communication to reinforce the development of favourable attitudes, given women's low level of knowledge about breast cancer.

4.3. Practices

Only 10.9% of women surveyed practiced BSE adequately. This rate is much lower than that found in Dakar in 2009 by Gueye SMK, who found that 29% of women practiced BSE [8]. These differences could be explained by the urban nature of the study area and by the target population, which consisted

of women attending the 5 major hospitals in Dakar.

This result is also much lower than those found in other studies such as that of Hsairi M in 2003 in Tunisia and that of Kodio A in Bamako in 2021, which found respectively that 68.6% and 74.6% of women practiced BSE [13, 14]. Similar observations were found in Nigeria with Okobia MN who found that 43.2% of the women surveyed in her study practiced BSE [15]. These differences can be explained by the fact that in these studies, knowledge of BSE was established based on self-reporting; knowledge of the technique and frequency of practice were not verified. In this study, on the other hand, knowledge of BSE was established only after verification of good knowledge of the technique and frequency of practice, in accordance with WHO recommendations.

This rate is quite similar to that of Murad E in 2022 in Addis Ababa who found a frequency of 19.46% of women practicing breast self-examination [12]. In the latter case, it should be recognized that the operational definitions of knowledge of breast self-examination are similar.

This low frequency of breast self-examination in the commune of Mbour is easily explained by the inadequacy of communication aimed at women on breast cancer prevention.

The practice of breast self-examination is influenced in this study by age and level of education. Women under 50 and those with higher levels of education were more likely to perform BSE. These results are found in almost all studies in this field [8, 12, 13, 15-19]. Educated women have much greater access to health information and develop attitudes favourable to the practice of BSE. The younger women in this series are better educated and more open to health information, thanks to the increasingly frequent use of new information and communication technologies.

Marital status does not influence the practice of breast self-examination in this series. These results are similar to some studies which find no association between BSE and marital status [8, 12, 15, 16]. On the other hand, other studies have established a link between marital status and the practice of BSE [13, 19]. In a study conducted in 2021 in Rwanda, Igiraneza PC found that married women practiced SEA more often than unmarried women [19].

This study also showed that there was no link between having an income-generating activity and practicing SEA. These results are similar to those of many studies conducted in Africa and the Middle East [8, 13, 16, 17]. However, a number of studies highlight the link between having a job and practicing SEA; women who have a job are more likely to practice BSE [12, 18, 19]. These different results may be due to differences in the operational definitions of variables (trades, IGAs, occupation) and to dissimilar sampling.

5. Conclusions

The study found that women's average knowledge of breast cancer was associated with a good attitude to breast self-examination. However, the practice of BSE remains very low in the commune of Mbour. BSE is statistically associated with a good level of education among women and an age below 50.

To improve the use of BES, we need to

1. Strengthen communication with women through the media and medical staff. Medical staff should take advantage of every contact with women to give them advice on breast cancer prevention.
2. Develop and support the enrolment and retention of girls in school, while integrating aspects of breast cancer prevention into curricula.

The study will serve as a basis for other detailed studies and will help political decision-makers to take various national measures for the early diagnosis and treatment of breast cancer.

Abbreviations

BSE: Breast Self-Examination
IGA: Income-Generating-Activities
MNCHC: Maternal Newborn and Child Health Center
NS: Not Significant

Author Contributions

Mr Boubacar Gueye, principal author of the article, proposed the methodology, supervised data collection and wrote the article.

Mr Omar Bassoum collected and analysed the data.

Mrs Ndéye Marième Diagne, Mr Martial Coly Bop, Abdoul Aziz Ndiaye, Alioune Badara Tall and Ousseynou Ka actively participated in the analysis of the data and the correction of the article.

Conflicts of Interest

The authors declare no conflicts of interests.

References

[1] Bray F, Laversanne M, Weiderpass E, Soerjomataram I. The ever-increasing importance of cancer as a leading cause of premature death worldwide. Cancer [Internet]. 2021 Aug 15 [cited 2022 Jan 25]; 127(16): 3029–30. Available from: https://pubmed.ncbi.nlm.nih.gov/34086348/

[2] Sung H, Ferlay J, Siegel RL, Laversanne M, Soerjomataram I, Jemal A, et al. Global Cancer Statistics 2020: GLOBOCAN Estimates of Incidence and Mortality Worldwide for 36 Cancers in 185 Countries. CA Cancer J Clin. 2021; 71(3): 209–49. PMID: 33538338 https://doi.org/10.3322/caac.21660

[3] McCormack V, McKenzie F, Foerster M, Zietsman A, Galukande M et al. Breast cancer survival and survival gap apportionment in sub-saharan Africa (ABC-DO): A prospective cohort study. The Lancet Global Health, 2020, 8, e1203–e1212. https://doi.org/10.1016/S2214-109X(20)30261-8

[4] Sancho-Garnier H, Colonna M. Epidémiologie du cancer du sein. La Presse Médicale, 2019. 48, 1076–1084. https://doi.org/10.1016/j.lpm.2019.09.022

[5] Allemani C, Matsuda T, Di Carlo V, Harewood R, Matz M, Nikšić M, et al. Global surveillance of trends in cancer survival: analysis of individual records for 37,513,025 patients diagnosed with one of 18 cancers during 2000–2014 from 322 population-based registries in 71 countries (CONCORD-3). Lancet Lond Engl 2018; 391: 1023–75. https://doi.org/10.1016/S0140-6736(17)33326-3

[6] Mathelin C, Gairard B, Zanganeh M, Dominguez M, Renaud R, Brettes JP. Auto-examen des seins. Paris, Elsevier, EMC, Gynéco, 1996; 865-C-20: 4 ISSN 0246-1064, http://www.sciencedirect.com/science/article/pii/s0246106496 000266

[7] Lauver D. Theoretical perspectives relevant to breast self-examination. ANS Adv Nurs Sci. 1987; 9(4): 16–24. PMID: 3111348 https://doi.org/10.1097/00012272-198707000-00005

Gueye SMK, Bawa KDD, Ba MG, Mendes V, Toure CT, Moreau JC. Dépistage du cancer du sein: connaissance et pratique de l'auto-examen des seins au sein d'une population féminine au Sénégal. Rev Méd Brux. 2009 APR; 30(2): 77-82. PubMed | Google Scholar https://www.amub-ulb.be/revue-medicale-bruxelles/article/de pistage-du-cancer-du-sein-connaissance-et-pratique-de-l-auto

[8] Anderson BO. Guideline implementation for breast healthcare in low-income and middle-income countries: overview of the Breast Health Global Initiative Global Summit 2007. Cancer. 2008; 113: 2221–43 PMID: 18816619 https://doi.org/10.1002/cncr.23844

[9] Morère JC. Le cancer du sein: facteurs de risque, dépistage et suivi, Springer Verlag, France 2007; p17. https://doi.org/10.1007/978-2-287-36073-2_1

[10] Essi MJ, Njoya O. L'Enquête CAP (Connaissances, Attitudes, Pratiques) en Recherche Médicale. 2013; Health Sci. Dis; 14(2): 1-3. http://www.hsd-fmsb.org/index.php/hsd/article/viewFile/183/ pdf_22

[11] Murad E, Mehmet N, Ünal E, Mollahaliloğlu S. Knowledge, attitude, and practice on breast self-examination among females in Addis Ababa, Ethiopia. ESTÜDAM Halk Sağlığı Dergisi. 2022; 7(3): 521-530. https://doi.org/10.35232/estudamhsd.1114454

[12] Hsairi M, Fakhfakh R, Bellâaj R & Achour N. Connaissances, attitudes et comportements des femmes vis à vis du dépistage du cancer du sein. La Revue de Santé de la Méditerranée orientale. 2003; 9: 87-98. PMID: 15562737.

[13] Kodio A. Connaissances, attitudes, et pratiques des femmes en âge de procréer sur le cancer du sein au centre de santé de référence de la commune II (Bamako, Mali). Mémoire DU sénologie 2022; Université des sciences, des techniques et des technologies de Bamako, Faculté de Médecine et d'Odontostomatologie; https://www.bibliosante.ml/handle/123456789/5554

[14] Okobia MN, Bunker CH, Okonofua FE, Osime U. Knowledge, attitude and practice of Nigerian women towards breast cancer: a cross-sectional study. World J Surg Oncol. 2006; 4: 11. PMID: 16504034; PMC1397833. https://doi.org/10.1186/1477-7819-4-11

[15] Haji-Mahmoodi M, Montazeri A, Jarvandi S, Ebrahimi M, Haghighat S, Harirchi I. Breast self-examination: knowledge, attitudes, and practices among female health care workers in Tehran, Iran. Breast J. 2002 Jul-Aug; 8(4): 222-5. PMID: 12100114. https://doi.org/10.1046/j.1524-4741.2002.08406.x

[16] Asmare K, Birhanu Y, Wako Z. Knowledge, attitude, practice towards breast self-examination and associated factors among women in Gondar town, Northwest Ethiopia, 2021: a community-based study. BMC Womens Health. 2022 May 14; 22(1): 174. PMID: 35568846; PMCID: PMC9107683. https://doi.org/10.1186/s12905-022-01764-4

[17] Bouslah S, Soltani MS, Ben Salah A, Sriha AB. 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. 2014; 8: 123-132. https://doi.org/10.1007/S11839-014-0460-8

[18] Sama CB, Dzekem B, Kehbila J, Ekabe CJ, Vofo B, Abua NL, et al. Awareness of breast cancer and breast self-examination among female undergraduate students in a higher teachers training college in Cameroon. Pan Afr Med J [Internet]. 2017 [cited 2022 Mar 9]; 28. Available from: https://pubmed.ncbi.nlm.nih.gov/29255561/

[19] Igiraneza PC, Omondi LA, Nikuze B, Uwayezu MG, Fitch M, Niyonsenga G. Cancer du sein chez les Rwandaises en âge de procréer du district sud de Kayonza: facteurs influençant les pratiques de dépistage. Can Oncol Nurs J. 2021 Jul 1; 31(3): 258-265. PMID: 34395828; PMCID: PMC8320786. https://doi.org/10.5737/23688076313258265