



# Knowledge, Attitudes and Practice Regarding Breast Cancer among Parakou University Female Students in 2021

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## Abstract

**Background:** Breast cancer is a life-threatening pathology affecting women across the world. Evidence suggests deficiency of knowledge and numerous sociodemographic factors contribute to delayed medical attention seeking behavior whether initial symptoms of breast cancer go undetected. **Objective:** This study aimed to assess knowledge, attitudes and practices regarding breast cancer among Parakou University female students in 2021. **Method:** This was a cross-sectional study with descriptive and analytical purposes, carried out on the campus of the University of Parakou, from June 14 to July 2, 2021. Data collection was performed through an individual online questionnaire, designed with KoBoCollect version 1.29.3. Data analysis was implemented with EPI INFO VERSION 7.1.3.3 software. **Result:** A total of 200 students meeting the inclusion criteria participated in this study. Among them, 20.5% had never heard about breast cancer. Non practice of breast cancer screening (breast self-examination) prevalence was 80%. Factors favoring non practice of breast cancer screening were: ethnicity, religion, not adhering to screening ideas, not committing to educating family and friends about screening. Factors promoting breast cancer screening practice were: having ever heard about breast cancer, being able to point to breast cancer symptoms, having adequate knowledge of breast cancer screening methods, having a good knowledge of the late-stage screening drawbacks. **Conclusion:** Some young women with high school level are still unaware of breast cancer and do not practice screening.

Policymakers should consider more effective information outreach.

## Keywords

Knowledge, Attitudes, Practice, Breast Cancer, Parakou (Benin)

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## 1. Introduction

Breast cancer is a life-threatening pathology affecting women worldwide [1]. It is the most prevalent cancer among women and is the leading cause of cancer related death in women [2]. According to the WHO, in 2020, 2.3 million women were diagnosed with breast cancer across the world and 685,000 deaths were attributed to it globally [3]. Although this pathology prevalence is higher in developed countries, a large part of the worldwide breast cancer-associated deaths are emerging from developing countries [3] [4].

In Africa, breast cancer is the most commonly diagnosed and the leading cause of cancer related death with an estimated mortality rate of 12.1% [5]. In Benin, 32.1% of all women cancers are breast cancers and 12.1% of cancer related deaths among females is attributed to this pathology [6]. Early breast cancer detection combined with appropriate treatment is the cogent strategy to reduce breast cancer mortality [7] [8]. Women who undergo screening tests are more likely to discover the disease at an early stage, making the treatment straightforward and ultimately improving survival [9]. Likewise, enough knowledge about breast cancer has a positive impact on the screening behavior of women and encourages them to seek immediate medical attention when detecting the initial symptoms [10]. Evidence suggests deficiency of knowledge and numerous sociodemographic factors contribute to delayed medical attention seeking behavior whether initial symptoms of breast cancer go undetected [11]. For example in many African countries, it has been reported the young age at breast cancer diagnosis in Benin [12] [13]. Young women are therefore invited to be careful about the disease. Education and early commencement of breast self-examination by the age of 20 years has then been recommended by the American Cancer Society [14]. As indicated in many studies, the practices of breast self-examination are low among university students [11] [15] [16] [17] [18]. There is not yet data on breast cancer screening practice among Parakou University female students.

This study aimed to assess knowledge, attitudes and practice regarding breast cancer among Parakou University female students in 2021.

## 2. Method

This was a cross-sectional study with descriptive and analytical purposes, carried out on the campus of the University of Parakou, from June 14 to July 2, 2021. The study population consisted of female students of the University of Parakou (UP). Included in the study were: female students, aged 18 to 49 years, regularly

enrolled at the UP during the academic year 2020-2021, and interested in participating in this study. Excluded were: health science students (Nursing, midwifery, medicine), and those unable to understand and fill the questionnaire for any reason.

Exhaustive recruitment of all participants interested in the research was carried out. Data collection was performed through an individual online questionnaire, designed with KoBoCollect version 1.29.3., which was sent to the WhatsApp forums and other relevant academic platforms of the targeted entities, due to the constraints related to the COVID 19 pandemic.

The approximate time for completing the questionnaire was 15 minutes. The questionnaire consisted of four parts.

The first part was dedicated to collecting information about the student's sociodemographic characteristics, including: age (year), school level, marital status, religion and ethnicity.

The second part was dedicated to collecting information about the student's knowledge regarding breast cancer including: having ever heard about breast cancer, having knowledge about the risk factors of breast cancer, being able to point to breast cancer symptoms, having knowledge of breast cancer screening methods, and having knowledge of the late-stage screening drawbacks. Except the first question of this item, the others had multiple choices. A right choice is scored as 1 point, while a wrong choice is scored as 0 point. A final score expressed as a percentage is given to each participant for each of these questions. It is equal to the sum of the points earned divided by the total number of right choices available for the question, multiplied by 100. Participants with a score equal or over 50% were classified as "good informed for the question" and those with a score down to 50% were classified as "poorly informed for the question".

The third part was dedicated to collecting information related to the student's attitude regarding breast cancer including: Adherence to the breast cancer screening idea, Commitment to educate family and friends about breast cancer screening.

The fourth part was dedicated to collecting information about the student's practice regarding breast cancer (self-examination) including: how to do it and when to do it. The questions in this item had also multiple choices and participants had been classified according to the rules described above.

For validity assessment verification, the questionnaire's initial draft was reviewed by a group of experts and modifications were made according to their comments. After a second review, experts verified the validity of the modified questionnaire. The validity coefficient of the questionnaire as a whole was estimated at 0.97. For reliability assessment, the questionnaire was administered to twenty female students who had randomly been selected from different school levels in order to detect difficulties that may arise during the study and to estimate the required time to fill the questionnaire. The process was repeated two weeks later with the same 20 subjects. Based on this assessment, the reliability coefficient was calculated to 0.92.

The dependent variable was the practice of breast cancer screening among female students. The covariables were demographic data, level of knowledge, and attitudes of participants regarding breast cancer. After data exportation in Excel format, data analysis was implemented with EPI INFO VERSION 7.1.3.3 software. Pearson's chi-square test was used to implement association between variables. The significance level of 5% was considered.

### 3. Result

A total of 200 students meeting the inclusion criteria participated in this study.

#### 3.1. Sociodemographic Characteristics

The mean age was  $20.26 \pm 6.04$  years with extremes of 18 and 35 years. Students under the age of 20 were most represented (60%). The majority were undergraduate's level 1 students (41.5%). Singles were predominant (92.5%). Approximately three-quarters of the participants were Christians (73%); and almost half (49.5%) were from Fon and related ethnicities (**Table 1**).

**Table 1.** Distribution of participants according to their demographic characteristics (n = 200).

	Size	Percentage (%)
<b>Age group (year)</b>		
<20	122	61.0
21 - 22	45	22.50
>23	33	16.50
<b>School level</b>		
Undergraduate level 1	83	41.50
Undergraduate level 2	62	31.00
Undergraduate level 3	53	26.50
Postgraduate level 1 and 2	2	1.00
<b>Marital status</b>		
Single	185	92.50
Married	15	7.50
<b>Religion</b>		
Christian	146	73.00
Muslim	52	26.00
Animist/Others	2	1.00
<b>Ethnicity</b>		
Bariba	29	14.50
Dendi	16	8.00
Fon and related	99	49.50
Nagot and related	29	14.50
Others	27	13.50

### 3.2. Factors Related to Knowledge about Breast Cancer

Of the 200 participants, 159 (79.5%) had ever heard about breast cancer. Of these, 76 (47.8%) had real knowledge about the risk factors of breast cancer; 99 (62.3%) could point to breast cancer symptoms (breast lump, breast enlargement, breast asymmetry, breast skin retraction, and orange peel appearance); and 68 (42.8%) had adequate knowledge of breast cancer screening methods (self-examination, breast ultrasonography, and mammography). Only (59.8%) of the participants had a good knowledge of the late-stage screening drawbacks (Table 2).

### 3.3. Attitude Related to Breast Cancer Screening

Most of the participants had agreed for the screening idea (87.50%); and had committed to educating others about breast cancer screening (87.44%) (Table 3).

### 3.4. Factors Related to the Practice of Breast Cancer Screening

Of the 200 participants, 160 did not practice screening. This represents a non-practice of breast cancer screening prevalence of 80% (Table 4).

### 3.5. Analysis of Factors Associated with Not Attending Breast Cancer Screening

Regarding sociodemographic characteristics, age group, school level and marital

**Table 2.** Distribution of participants according to factors related to knowledge about breast cancer (n = 200).

	Size	Percentage (%)
<b>Having ever heard about breast cancer</b>		
Yes	159	79.50
No	41	20.50
<b>If yes, having good knowledge about the risk factors of breast cancer</b>		
Yes	76	47.80
No	83	52.20
<b>If yes, being able to point to breast cancer symptoms</b>		
Yes	99	62.30
No	60	37.70
<b>If yes, having adequate knowledge of breast cancer screening methods</b>		
Yes	68	42.80
No	91	57.20
<b>If yes, having a good knowledge of the late-stage screening drawbacks</b>		
Yes	95	59.80
No	64	40.20

**Table 3.** Distribution of participants according to attitude related to breast cancer screening (n = 200).

	Size	Percentage (%)
<b>Adherence to the breast cancer screening idea</b>		
No	9	4.50
Neutral answer	16	8.00
Yes	175	87.50
<b>Commitment to educate family and friends about breast cancer screening</b>		
No	9	4.50
Neutral answer	16	8.10
Yes	174	87.44

**Table 4.** Distribution of participants according to factors related to the practice of breast cancer screening (n = 200).

	Size	Percentage (%)
<b>Good practice of screening (self-examination)</b>		
Yes	40	20.00
No	160	80.00

status were not associated with breast cancer screening practice. In contrast, ethnicity and religion were significantly associated with breast cancer screening practice. Indeed, participants from Nagot and related ethnicity were significantly associated with breast cancer screening practice (p-value = 0.01) and were less likely not to practice breast cancer screening [0.17 - 0.91] than participants from Fon and related ethnicity. Participants from Bariba/Dendi ethnicity were significantly associated with breast cancer screening practice (p-value = 0.01), but this association was in an undetermined sense [0.28 - 1.52]. On the other hand, Muslim participants were significantly associated with breast cancer screening practice (p-value = 0.0016) and were less likely not to practice breast cancer screening [0.15 - 0.66] than Christian participants (**Table 5**).

Regarding factors related to breast cancer knowledge, participants who had never heard about breast cancer were significantly associated with breast cancer screening practice (p-value < 0.001) and were 5.61 times more likely not to have good breast cancer screening practice [1.44 - 10.58]. Participants who could not point to breast cancer symptoms were significantly associated with breast cancer screening practice (p-value < 0.001) and were 4.71 times more likely not to have good breast cancer screening practice [1.83 - 12.05]. Participants who had not adequate knowledge of breast cancer screening methods were significantly associated with breast cancer screening practice (p-value < 0.001) and were 5.39 times more likely not to have good breast cancer screening practice [2.11 - 13.78]. Participants who had not a good knowledge of the late-stage screening drawbacks were significantly associated with breast cancer screening practice

**Table 5.** Association between sociodemographic characteristics and not practicing breast cancer screening (n = 200).

	PR	[CI 95% of PR]	p-value
<b>Age group (year)</b>			
<20	1	-	-
21 - 22	1.67	[0.65 - 4.77]	0.15
>23	0.59	[0.25 - 1.45]	0.12
<b>School level</b>			
Postgraduate level 1 - 2	1	-	-
Undergraduate level 1	0.09	[0.00 - 1.63]	0.18
Undergraduate level 2	0.24	[0.01 - 4.11]	0.36
Undergraduate level 3	0.65	[0.03 - 11.07]	0.64
<b>Marital status</b>			
Single	1	-	-
Married	0.68	[0.20 - 2.28]	0.36
<b>Religion</b>			
Christian	1	-	-
Muslim	0.32	0.15 - 0.66	0.0016
Animist/Others	0.17	0.01 - 2.79	0.6849
<b>Ethnicity</b>			
Fon and related	1	-	-
Nagot and related	0.39	[0.17 - 0.91]	0.01
Bariba/Dendi	0.65	[0.28 - 1.52]	0.01

(p-value < 0.001) and were 5.41 times more likely not to have good breast cancer screening practice [2.44 - 11.95]. Nevertheless, not having a good knowledge about the risk factors of breast cancer (p-value = 0.0741) was not associated with breast cancer screening practice (**Table 6**).

Regarding attitudes about breast cancer, participants who had not adhered to screening idea were significantly associated with breast cancer screening practice (p-value = 0.01) and were 7.06 times more likely not to practice breast cancer screening [1.25 - 151.28]. Participants who were not committed to educating family and friends about screening were significantly associated with breast cancer screening practice (p-value = 0.01) and were 7.41 times more likely not to practice breast cancer screening [1.32 - 158.50] (**Table 7**).

#### 4. Discussion

Due to the limitation in required resources to provide appropriate breast cancer therapy, the key determinant to improve breast cancer outcomes, specifically in low- and middle-income settings has been claimed to be early-stage at cancer detection [19] [20]. But, the efficacy of breast self-examination has not been evidenced

**Table 6.** Association between factors related to knowledge about breast cancer and not practicing breast cancer screening (n = 200).

	PR	[CI 95% of PR]	p-value
<b>Having ever heard about breast cancer</b>			
Yes	1	-	-
No	5.61	1.44 - 10.58	<0.001
<b>If yes, having real knowledge about the risk factors of breast cancer</b>			
Yes	1	-	-
No	1.93	0.93 - 4.00	=0.0741
<b>If yes, being able to point to breast cancer symptoms</b>			
Yes	1	-	-
No	4.71	1.83 - 12.05	<0.001
<b>If yes, having adequate knowledge of breast cancer screening methods</b>			
Yes	1	-	-
No	5.39	2.11 - 13.78	<0.001
<b>If yes, having a good knowledge of the late-stage screening drawbacks</b>			
Yes	1	-	-
No	5.41	2.44 - 11.95	<0.001

**Table 7.** Association between attitude related to breast cancer and not practicing breast cancer screening (n = 200).

	PR	[CI 95% of PR]	p-value
<b>Adherence to the breast cancer screening idea</b>			
Yes	1	-	-
No	7.06	[1.25 - 151.28]	0.01
<b>Commitment to educate family and friends about breast cancer screening</b>			
Yes	1	-	-
No	7.41	[1.32 - 158.50]	0.01

as a unique screening tool for breast cancer in the previous literature [20]. Nevertheless, in regions where breast cancer is usually diagnosed at an advanced stage, screening by clinical breast examination combined with the teaching of breast self-examination, has been emphasized as an integral component, most likely to be an effective vector in reducing breast cancer mortality [21].

This study has shown that 20.5% of the participants had never heard about breast cancer. Abo Al-Shiekh *et al.* in a similar study conducted in Gaza University students in Palestine, reported 96.5% of participants having heard about breast cancer [15]. This difference should be attributed to the fact that the size of participants in their study is shorter than ours. Furthermore, advanced students in health sciences (nursing, clinical nutrition) were primarily included in their



study. Actually, advanced students in health sciences are most likely to learn the essentials about breast cancer during theoretical lectures and internships. The same observation was reported by Abdel *et al.*, Tewabe *et al.*, Alsareii *et al.* in Egypt, Ethiopia, and Saudi Arabia Universities respectively, where the majority of health sciences students became aware of breast cancer through their syllabuses [16] [17] [22]. Policymakers should therefore consider more effective information outreach for students from non-health-related fields.

Vieira *et al.* in a systematic review investigating barriers related to the health system in Brazil has demonstrated that women less educated were more vulnerable, because they are unaware about the disease. In contrast to that, despite the high level of schooling of our participants, one-fifth of them still ignored the disease [23]. This should raise up the hypothesis of the lack of strengths in the collaboration between the health system policymakers and the academic system policymakers in Benin. This should suggest, on the other hand, the need for further qualitative study in order to determine the factors that prevent practice of breast cancer screening among these well-schooled women.

In this study, non-practice of breast cancer screening (breast self-examination) prevalence was 80%. This means a prevalence of breast cancer screening practice of 20%. This result is consistent with several previous studies that have shown poor practice of breast self-examination from 20% to 55% [15] [16] [24] [25] [26]. This highlights the urgent need for strengthening the awareness channels in our countries.

Abo Al-Shiekh *et al.* found three dominant barriers to breast screening practice among Gaza University students: women who have never experienced a breast problem (39.7%), who do not know how to do it (37.9%), and busyness (31%) [15]. Birhane *et al.* in a similar study carried out among Female Debre Berhan University Students in Nigeria have also evidenced that lack of knowledge on how to perform the breast self-examination was the main reason for not practicing it. In addition, Knowing how to perform, when to perform, and position to perform breast self-examination and having a perception that breast self-examination is important and useful to detect breast cancer were significant predictors of screening practice among these female students [18]. Whilst this study reveals as factors that favoring non practice of breast cancer screening: ethnicity, religion, not adhering to screening ideas, not committing to educating family and friends about screening. In fact, some women feel that they are not susceptible to the disease because of their religious beliefs. As a result, they neglect screening practice, even when they are warned. In addition, the understanding of the disease varies from one ethnic group to another. According to some ethnic beliefs, it is by worrying about the disease that one ends up contracting it. This points to the need to involve and enlighten religious, ethnic and community leaders about the disease. It should also be interesting to review the hypothesis of forgetfulness in informed women who do not practice breast self-examination.

Abo Al-Shiekh *et al.* also found that breast cancer early detection purpose and the presence of family history of breast cancer were considered facilitators to practice breast self-examination [15]. This study has shown that factors promoting breast cancer screening practice were: having ever heard about breast cancer, being able to point to breast cancer symptoms, having adequate knowledge of breast cancer screening methods, having a good knowledge of the late-stage screening drawbacks. This underlines how important it is to reorganize the system of breast cancer screening awareness in our countries, in order to share the adequate information and convince people.

## 5. Study Bias

This study may encounter selection bias. Indeed, students who had not logged into their WhatsApp account or other relevant academic platforms would not have had the opportunity to participate in this study.

## 6. Conclusion

The study has shown that some women are still unaware of breast cancer and do not practice screening. Policymakers should consider more effective information outreach. Awareness campaigns targeting a broader audience include health care professionals, community leaders, religious leaders, and also men may be more effective. Further qualitative research should be considered to determine the factors that prevent practice of breast cancer screening among these well-schooled women.

## Ethical Considerations

The research proposal of this study was submitted to the Biomedical Research Ethics Committee of the University of Parakou for clearance. Informed consent was assumed for all participants. Data were collected in strict anonymity.

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## Conflicts of Interest

The authors declare no conflict of interest.

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