MINISTRY OF EDUCATION AND TRAINING
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HAIPHONG UNIVERSITY OF MEDICINE AND PHARMACY

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KNOWLEDGE, ATTITUDE, PRACTICE OF WOMEN AND HEALTH STAFF ABOUT BREAST CANCER EARLY DETECTION IN THE TWO DISTRICTS IN HAIPHONG CITY AND EFFECTIVENESS OF INTERVENTION

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LIST OF WORKS RELATED TO THE DISSERTATION HAS BEEN PUBLISHED

1. Dao Thi Hai Yen, Hoang Thi Giang, Pham Van Han, Vu Van Tam (2021), "Health-care staff's knowledge, attitude and skills related to breast cancer early detection in two districts of hai phong in 2017", *Vietnam Journal of Preventive Medicine*, Vol 31, n^{0}5 – 2021, pg. 60-68, Article in Vietnamese.

2. Dao Thi Hai Yen, Pham Van Han, Vu Van Tam (2021), "Women's knowledge, attitude and practice related to breast cancer in several coastal communes of Thuy Nguyen district, Hai Phong". *Vietnam Medical Journal*, Vol 503, (special issue), part 2, pg. 354-360, Article in Vietnamese.

INTRODUCTION

Breast cancer (BC) is the most common cancer and also one of the main causes of death for women in many countries [1]. According to GLOBOCAN 2020, female breast cancer has surpassed lung cancer, which is the most commonly diagnosed cancer with an estimated 2.3 million new cases (11.7%). Therefore, cancer prevention in general and BC prevention in particular is always considered one of the top priority health issues [2,3].

In Vietnam, BC tends to increase over time, within 10 years from 2000 to 2010, the standardized rate of BC in women increased nearly 2 times (from 17.4/100,000 population to 10.4%). 29.9/100,000 population) and ranks first among all cancers in women [4]. Patients with cancer are often detected late, the mortality rate is high. To improve the lives of cancer patients, it should be detected at an early stage (stage Tis and T1).

Women's knowledge, attitudes and practices about breast cancer are closely related to cancer prevention. In our country, the rate of women's knowledge, attitude and practice about breast cancer is still low, according to some studies, the rate of having correct knowledge ranges from 50-67.9%, correct attitude 62, 7%, having clinical breast examination from 14.3-17% and breast self-examination from 13.8-15.2% [6–9], this is the cause of low early detection of breast cancer, and is the main reason for the low cure rate of cancer. Therefore, we carried out the topic: "The current status of knowledge, attitudes and practices of women and health workers in detecting breast cancer in 2 districts of Hai Phong and the effectiveness of intervention solutions" with the following objectives: :

1. Description of knowledge, attitudes and practices (KAP) of women in early detection and prevention of breast cancer in 2 districts Thuy Nguyen and Cat Hai, Hai Phong city in 2017 - 2018.

2. Determining the knowledge, attitudes and practices (KAP) of health workers in the early detection and prevention of breast cancer in the two districts above.

3. Evaluating the effectiveness of interventions by communication - education and training to improve KAP of women and of health workers in early detection and prevention of breast cancer.

THE NEW CONTRIBUTION OF THE DISSERTATION

The study was conducted on a total of 1134 women aged 18 to 72 years old, including 928 in Thuy Nguyen and 206 in Cat Hai and 120 commune health workers in charge of obstetrics pediatricsrics of 35 communes in Thuy Nguyen district and 10 communes. in Cat Hai district, Hai Phong city has contributed to the national data system on the status of knowledge, attitudes, and practices of women and commune health workers in early detection and prevention of breast cancer as well as some relationships with socio-demographic characteristics of the research subjects. Research results show that the knowledge and practice of breast cancer among women and health workers is limited and it is related to factors such as low education level, little access to information about breast cancer and location. point in Thuy Nguyen.

The intervention components on 500 women and uncontrolled interventions on 120 health workers show that communication interventions in the community as well as counseling activities at health facilities have brought very positive results in improving knowledge and practice on prevention and early detection of cancer. This is an important basis for planning health policies on breast cancer locally as well as nationally, increasing the rate of early detection and treatment of breast cancer, contributing to improving public health.

STRUCTURE OF THE DISSERTATION

The main part of the dissertation has 129 pages, consisting of the following sections:

Introduction: 2 pages

Chapter 1- Overview: 36 pages

Chapter 2 - Materials and Methods: 24 pages

Chapter 3 - Results: 37 pages

Chapter 4 - Discussion: 29 pages

Conclusions and recommendations: 3 pages

The dissertation, has 110 references, including 22 Vietnamese and 88 English onces, 44 tables and 11 figures. There are totally 10 appendices of 45 pages.

Chapter 1 : OVERVIEW

1.1. The concept of breast cancer and breast characteristics

Cancer is a type of cancer that starts in the breast, can be anywhere in the mammary gland, cancer begins when cells begin to grow out of control, the tumor can invade and metastasize to other sites elsewhere in the body, most commonly in the bones, liver, lungs, and brain. Cancer can start in different parts of the breast from the lobes, ducts, nipples, stroma, blood vessels, lymphatics. The most common are lobular carcinoma and ductal carcinoma [14].

1.1.1. Breast structure in adult women

The breast is a milk gland in the chest, going from rib II to rib VI and from the breastbone to the armpit, the mammary gland tissue extends to the anterior axillary region, sometimes into the armpit called the tail axillary mammary gland.

The average measured breast diameter is 10 -12 cm, and 5-7 cm thick in the central region. The shape of the breast varies greatly, but usually the breast is raspberry-shaped or the, lower half is rounded and more convex than the upper half when the breast is erect. After giving birth a lot, the breasts sag, there is a distinct groove under the breast.

The breast consists of the mammary gland, the nipple, and the areola. The mammary gland is a single-celled secretory gland consisting of 15-20 irregular lobes, the lobes of which are separated by connective septa. The glandular lobes are made up of many round or elongated glandular cysts, clustered or singly. The 2-3 cystic structure empties into the terminal branches, of the excretory duct in the lobules. These ducts empty into the interlobular branches and then into the nipple through the milk ducts. The lactation holes are clearly visible in the nipples.

1.1.2. Breast histology

The mammary gland is located in the fatty, connective tissue above the pectoral muscle, extending from rib II to rib VI. From the outside to the inside, it includes the skin, the connective tissue under the

skin, the milk glands, the fat layer behind the breast. The skin covering the mammary gland is continuous with the skin of the chest wall, at the nipples there are many pigment cells that make the areola dark, and around the nipple there are convex dermal glands under the skin. There are supporting pecpediatricsor muscles that give the breast shape in adult women with pyramidal shape. The subcutaneous fat layer changes depending on the body and age.

The large ducts are covered with stratified squamous epithelium, the epithelial layer that connects to the cylindrical cells of the smaller ducts. The periphery of the tubes is lined by low cylindrical cells, mixed with cubic cells. The stroma supports the lobules like the connective tissue in the lobules and connects with the tissues around the milk ducts. These tissues change according to the period of mammary gland activity. Except during pregnancy and lactation, most of the mammary gland structure is fibrous and fatty tissue [16].

1.2. Epidemiology of breast cancer

1.2.1. In the world

Breast cancer is the most common cancer and also the leading cause of death in women (PN) worldwide. In recent years, the rate of cancer in the world is increasing rapidly and alarmingly. According to Globocan 2018 data, out of all more than 18 million newly diagnosed cancer patients and 9.5 million cancer deaths worldwide, breast cancer is in second place with about 2.1 million new cases accounting for 11.6% and of which nearly 627,000 women die from this disease, it is estimated at 6.6%. If only in 8.6 million women with cancer, breast cancer is the most common 24.2% and of 4.2 million women who die from cancer, the highest rate is 15% [3]. Statistics also show that 1 in 5 men and 1 in 6 women worldwide may develop cancer during their lifetime, and 1 in 8 men and 1 in 11 women will die from the disease; total number of people alive within 5 years of being diagnosed with cancer, estimated at 43.8 million people.

1.2.2. In Viet Nam

The rate of breast cancer tends to increase over the past two decades and has become the most frequently diagnosed cancer in Vietnamese women due to many reasons [20]. In 2012, approximately 11,060 cases of breast cancer in women were diagnosed, with 64.7% of cases under the age of 50. These data show that breast cancer is the leading cancer among women in Vietnam and ranks fifth among all cancer cases in women. This situation changed from 1993 to 1998 when cervical and breast cancers were the cancers with the highest rate with the rate of 17.8/100,000 and breast cancer was 17.3/ 100,000 population [21]. Improved health services may be a contributing factor to the increased incidence of breast cancer due to early detection [23].

1.3. Knowledge, attitudes and practices of women and health care workers about breast cancer

1.3.1. Women

Inadequate awareness about breast cancer as well as the benefits of screening and early detection are important barriers for women to go to the doctor, early detection of breast tumors increases the chances of cure. disease [19].

Studies on knowledge, attitudes and practices about breast cancer show that there are differences between geographical regions, research subjects as well as the contents of information collection tools. However, in general, the results show that awareness of breast cancer in women still has many gaps that need attention, limited awareness of breast cancer is related to attitudes and practices of breast cancer detection.

1.3.2. Health staff

In Southeast Asia, a study on knowledge, attitudes, practices and barriers of breast cancer health promotion activities among the pharmacist community in Malaysia was conducted in 2012. The results showed that The average overall knowledge is 56%, only 11.3% answered all knowledge questions correctly. For participation

in breast cancer awareness and screening, the participation rate was nil. The main barriers cited included: time constraints (80%), lack of educational materials on breast cancer (77.1%) and lack of specialist training (62.9%). Other barriers are gender barriers, lack of human resources, and budget. Despite this, most of the participants agreed that the community pharmacist's involvement in breast cancer education should be integrated into their daily practice, as they see it as their responsibility as well. as an opportunity to enhance their expertise [74].

1.4. Preventive measures for breast cancer

- Communication to reduce risk factors
- Early detection of cancer
- Prophylactic treatment: drugs, preventive surgery for women at high risk of breast cancer

Chapter 2. MATERIALS AND METHODOLOGY

2.1. Research objects, location and timing

2.1.1. *Research objects*

- The study was carried out on two subjects, women and health staffs living and working in 6 communes of Thuy Nguyen district, including: An Lu, Lap Le, Pha Le, Phuc Le, Thuy Trieu, Trung Ha and 2 Communes of Cat Hai district are Phu Long and Tran Chau, Hai Phong city.
- Selection criteria:

+ Women: ≥18 years old, living ≥5 years in the above communes of 2 districts Thuy Nguyen and Cat Hai, Hai Phong city.

+ Health staff: is a medical officer in charge of or working on obstetrics - paediatrics or obstetrics and gynecology at all health stations of the communes of Cat Hai and Thuy Nguyen districts, including: doctors and general practitioners, obstetricians, and midwives.

+ Common criteria for both women and commune health workers: Voluntary participation in the study.

2.1.2. Location

- Cross-sectional descriptive study: 6 coastal communes of Thuy Nguyen district including: An Lu, Lap Le, Pha Le, Phuc Le, Thuy Trieu, Trung Ha and 2 communes of Cat Hai district, Phu Long and Tran Chau.
- Interventional phase:

+ For women's groups: implemented in 2 intervention communes, Phuc Le and Tran Chau; The two control communes were Lap Le and Phu Long, because socio-economic conditions are similar.
+ For the heath staff: select all health staff to participate in the study from the cross-sectional stage.

2.1.3. Timing: from January 2017 to May 2019

2.2. Methodology

2.2.1. Research design

A cross-sectional descriptive study and intervention with before and after approach with control (women) and no control (health staff).

2.2.2. Sample size and sampling method

2.2.2.1. Sample size for cross-sectional descriptive study

- 1134 women, including 928 in Thuy Nguyen and 206 in Cat Hai and 120 health workers.

2.2.2.2. Sample size for commutinity intervention study:

- Women: 250 intervention groups and 250 control groups.
- Health staff: 120 health workers before and 90 health workers with post-intervention assessment.

2.3. Data collection

2.3.1. Variables and research index

- Knowledge of cancer: knowledge of symptoms, risk factors, early detection measures, prevention measures.
- Attitudes about cancer: level of danger, possibility of prevention, cost of treatment.
- Practice: practice breast self-examination with women and breast examination with health workers.
- Assess the effectiveness of community intervention: the change before

and after the intervention according to the variables of knowledge, attitude, practice.

2.3.2. Data collection tools and techniques

2.3.2.1. Tools

Questionnaire: The questionnaire on knowledge - attitude - practice about BC for women and health workers includes (Appendix 1,2):

- Demographic information: age, occupation, address, education level, professional qualification, number of years of work.
- Knowledge related to symptoms, early detection and prevention of cancer.
- Knowledge of factors related to breast cancer: Family history, blood relations, especially sisters who have had breast cancer, personal history of breast disease: the disease has been acquired; previous biopsy results if any, history of Obstetrics and Gynecology: indirect menstrual characteristics to assess ovarian endocrine status, history of childbirth and lactation.
- Attitudes about cancer and early detection of cancer.
- Practice: periodical breast examination, breast self-examination, clinical breast examination.

Breast examination table*:*

- For the assessment of women's breast self-examination practice before and after the intervention including 8 steps following the Instructions for self-examination of breasts and how to detect suspicious symptoms (Appendix 5).
- For the assessment of the practice of breast examination by medical staff before and after the intervention, including 21 steps (Appendix 3).

2.3.2.2. Data collection techniques

Information was collected from patient visits and interviews at the time of intervention before and after the intervention by questionnaires and participatory observations using checklists.

2.4. Data analyses:

Data was cleaned, entered into Epidata 3.1 software and analysed by Stata software 12.0.

2.5. Ethical issues

The study was carried out in accordance with the outline approved by the proposal review board of Hai Phong University of Medicine and Pharmacy with the consent of the leaders of the medical centers of the districts and the health stations to carry out the research. Subjects participated in the study completely voluntarily on the basis that the investigator explained the purpose of the study. Subjects' refusal to participate in research will not affect the benefits they are receiving from health programs or services. Research subjects can notify the researcher if they want to change their mind and do not want to continue participating in the study.

Chapter 3: RESULTS

3.1. Women's knowledge, attitude, practice (KAP) in early detection of breast cancer in 2 districts of Thuy Nguyen and Cat Hai, Hai Phong in 2017.

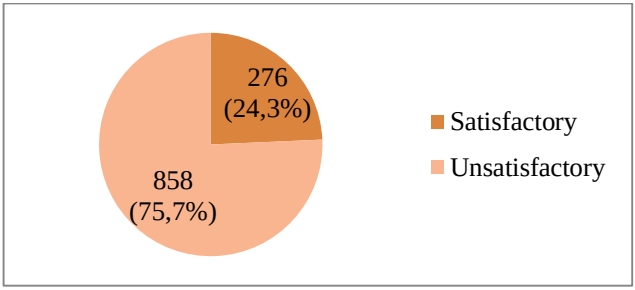

Figure 3.1. Women's general knowledge about breast cancer

Interpret: The rate of general knowledge about BC in both districts is 24.3%, the knowledge is not satisfactory is 75.7%.

Table 3.7. Women's attitudes about breast cancer

Attitude about breast cancer	Ratio (%) by degree				
	1	2	**3**	4	**5**
Breast cancer is very dangerous	42,4	51,5	4,1	0,9	1,1
Breast cancer is preventable	18,0	58,6	17,9	3,0	2,5
The prevention and early detection of breast cancer is very valuable	32,9	56,1	8,4	1,3	1,3
Breast cancer is completely curable when	18,7	55,7	20,6	2,5	2,5

detected early					
Breast cancer is expensive to treat	33,9	52,0	9,3	2,3	2,5
Breast cancer can be treated conservatively at an early stage	18,1	47,9	23,0	7,8	3,2
Need to advise mothers and sisters to go to the doctor if they have breast cancer	34,7	56,3	6,3	1,3	1,4
Propaganda of breast cancer is very necessary	39,6	52,2	5,6	0,8	1,9

1-Completely agree, 2-Agree, 3-No idea, 4-Disagree, 5-Completely disagree

Interpret: In general, the rate of women with the highest positive attitude about breast cancer is that BC is a very dangerous, and BC is expensive to treat, need to advise mother and sisters to go to doctor if they have BC and BC propaganda is very necessary from 33.9 to 42.4%. The lowest attitude is that BC is preventable, BC is completely curable when detected early, and breast cancer can be treated conservatively at an early stage with about 18%.

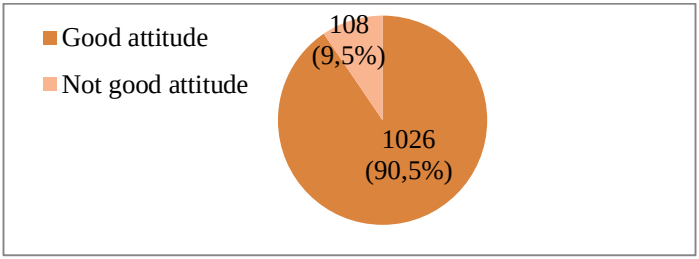

Figure 3.2: Women's general attitudes about breast cancer

Interpret: The percentage of women with overall positive attitudes about BC in both districts is 90.5%.

Table 3.8: Women's practices in early detection and prevention of breast cancer

Practice in early detection and prevention of cancer	Data collection tool	No		Yes	
		Number	Ratio%	Number	Ratio%
Have ever had a breast exam (n=1134)	Interview Questionnaire	509	44,89	625	55,11
Have had periodical	Interview	1064	93,83	70	6,17

breast exams (n=1134)	Questionnaire				
Breast self-exam (n=1134)	Interview Questionnaire	486	42,86	648	57,14
Practice breast self examination is satisfactory (n=648)	Observation with a checklist	604	93,21	44	6,79

Interpret: In practice for early detection and prevention of BC, research results show that only 55.11% of women have ever had a breast examination, 6.17% of women have had periodical breast examination; 57.14% of women have practice breast self-examination at home, but only 6.79% of women who pass practice breast examination.

Table 3.9. Relationship between women's general knowledge about breast cancer and some sociodemographic characteristics

Related factors	BC general knowlegde (n=1134)		OR [95%CI]	aOR* [95%CI]
	Unsatisfactory (n,%)	Satisfactory (n,%)		
Age				
≤ 40 years old	466 (77,28)	137 (22,72)	1,2[a] [0,92-1,58]	1,33[a] [0,99-1,79]
>40 years old	392 (73,82)	139 (26,18)		
Academic level				
Secondary school or lower	465 (79,08)	123 (20,92)	**1,47[b] [1,12-1,93]**	**1,5[b] [1,12-2,02]**
High school or higher	393 (71,98)	153 (28,02)		
Job				
Farming, housework	556 (75,54)	180 (24,46)	0,98[c] [0,73-1,30]	-
Officers and employees, business,...	302 (75,88)	96 (24,12)		
Ever had access to media information about breast cancer				
No	121 (90,3)	13 (9,7)	**3,32[d] [1,84-5,98]**	**2,8[d] [1,54-5,09]**
Yes	737 (73,7)	263 (26,3)		
Accommodation				
Thuy Nguyen	736 (79,31)	192 (20,69)	**2,63[d] [1,91-3,63]**	**2,49[d] [1,79-3,44]**
Cat Hai	122 (59,22)	84 (40,78)		

a: p<0,2; *b: p<0,05;* *c: p>0,2;* *d: p<0,001*

** Multivariable model: factor with p value in univariate analysis <0.2.*

Interpret: In the multivariate analysis model, three factors related to women's general knowledge about BC are education level, had access to information about BC and accommodation. Specifically, women with a high school education or higher are 1.5 times more likely to have knowledge than a lower secondary school level (95% CI: 1.12-2.02); women who have ever had access to information about BC have 2.8 times higher knowledge than the group who have never had access (95% CI: 1.54-5.09); Women in Cat Hai have 2.49 times higher knowledge than women in Thuy Nguyen (95%CI: 1.79-3.44).

Table 3.10: Relationship between women's general attitude about breast cancer and some sociodemographic characteristics

Related factors	BC general attitude		aOR* [95%CI]
	Not good (n,%)	Good (n,%)	
Age			
≤ 40 years old	66 (10,95)	537 (89,05)	1,26[c] [0,82-1,95]
> 40 years old	42 (7,91)	489 (92,09)	
Academic level			
Secondary school or lower	57 (9,69)	531 (90,31)	-
High school or higher	51 (9,34)	495 (90,66)	
Job			
Farming, housework	60 (8,15)	676 (91,85)	0,76[c] [0,49-1,17]
Officers and employees, business, ...	48 (12,06)	350 (87,94)	
Ever had access to media information about BC			
No	17 (12,69)	117 (87,31)	1,33[c] [0,76-2,33]
Yes	91 (9,1)	909 (90,9)	
Accommodation			
Thuy Nguyen	103 (11,1)	825 (88,9)	**4,61[d] [1,84-11,53]**
Cat Hai	5 (2,43)	201 (97,57)	

a: p<0,2; *b: p<0,05;* *c: p>0,2;* *d: p<0,001*

*Multivariate model: factor with p-value in univariate analysis >0.2.

Interpret: In the multivariable regression model, the only relevant factor was accommodation in Cat Hai compared to Thuy Nguyen with aOR = 4.61 (95%CI: 1.84-11.53).

Table 3.11. Some factors related to the practice of periodical breast examination of women according to the questionnaire

Related factor	Periodical breast exam (n=1134)		OR [95%CI]	aOR* [95%CI]
	No (n,%)	Yes (n,%)		
Academic level				
Secondary school or lower	566 (96,26)	22 (3,74)	**2,47[d] [1,47-4,16]**	**2,33[d] [1,38-3,92]**
High school or higher	498 (91,21)	48 (8,79)		

a: p<0,2; b: p<0,05; c: p>0,2; d: p<0,001

*Multivariate model: factor with p-value in univariate analysis >0.2.

Interpret: In the multivariable regression model, women with high school education or higher are 2.33 times more likely to have periodical breast exams than secondary school or lower (95% CI). 1.38 – 3.92, p<0.001).

Table 3.12. Some factors related to women's practice breast self-exam according to the questionnaire

Related factor	Breast self-exam (n=1134)		OR [95%CI]	aOR* [95%CI]
	No (n,%)	Yes (n,%)		
Ever had access to media information about BC				
No	107 (79,85)	27 (20,15)	**6,49[d] [4,17-10,09]**	**5,67[d] [3,5-9,04]**
Yes	379 (37,9)	621 (62,1)		
Accommodation				
Thuy Nguyen	456 (49,14)	472 (50,86)	**5,66[d] [3,76-8,52]**	**4,66[d] [3,04-7,15]**
Cat Hai	30 (14,56)	176 (85,44)		
Knowledge of breast cancer				
Unsatisfactory	422 (49,18)	436 (50,82)	**3,20[d] [2,35-4,37]**	**2,41[d] [1,73-3,36]**
Satisfactory	64 (23,19)	212 (76,81)		

a: p<0,2; b: p<0,05; c: p>0,2; d: p<0,001

*****Multivariate model: factor with p-value in univariate analysis >0.2

Interpret: In the multivariable model, only the factor that had access to media information about BC, Accommodation is Cat Hai, and knowledge of BC is satisfactory that increased the likelihood of having breast self-examination practice.

3.2. Knowledge, attitude and practice (KAP) of commune health staff in early detection of breast cancer in 2 districts of Thuy Nguyen and Cat Hai, Hai Phong in 2017

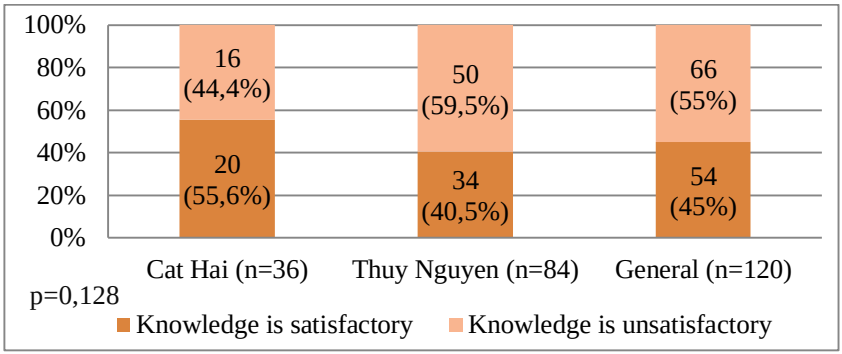

Figure 3.3. General knowledge of commune health workers about breast cancer

Interpret: The rate of health staffs with general knowledge of BC in both districts is 45%. In which, Cat Hai is 44.4%, in Thuy Nguyen is 40.5%. 7.3% of health staffs have weak knowledge about BC.

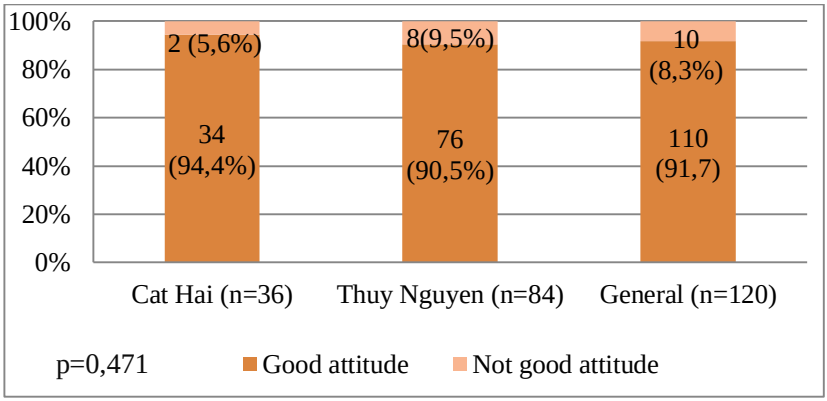

Figure 3.4. General attitude of health staff about breast cancer

Interpret: The percentage of health staffs with a good attitude about BC in both districts reached 91.7%. In which, the rate in Cat Hai is 94.4%, in Thuy Nguyen is 90.5%, there is no difference between the two districts.

Table 3.20. Breast examination skills of health staffs early detection of breast cancer

Breast examination skills	Satisfactory (Number, %)	Unsatisfactory (Number, %)
Preparation and questioning skills	64 (53,3)	56 (42,7)
Breast examination skills	16 (13,3)	104 (86,7)

Interpret: Through practical observation and marking by the checklist on breast examination skills, the results show that health workers have better skills in the preparation and questioning, with 53.3% passing. But, when performing breast examination, only 13.3% of health staffs are satisfactory.

3.3. Efficacy of health education communication interventions on knowledge, attitudes, and practices of women and health staffs in early detection of breast cancer.

3.3.1. Efficacy of interventions on knowledge, attitudes, and pratices

Table 3.29. Effectiveness in improving women's general knowledge of breast cancer

General knowledge about BC		Control group (n=250)		Study group (n=250)		Effectiveness of interventions %
		First time	Second time	Before	After	
General knowledge is satisfactory	Number (%)	91 (36,4)	102 (40,8)	81 (32,4)	205 (82,0)	**+141,0**
	p	0,101		**<0,001**		
Total knowledge score	Mean ± SD	20,0 ±3,74	20,9 ±3,47	19,9 ±3,58	25,8 ±3,72	**+25,1**
	p	**<0,001**		**<0,001**		

Interpret: After the intervention, both the rate of general knowledge and total knowledge score was higher in the study group than in the control group. The effectiveness of the intervention in terms of general knowledge rate was 141.0% and the average knowledge score was 25.1%.

Table 3.30. Effectiveness of interventions on improving women's breast self-exam practice

Practice breast self-examination		Control group (n=250)		Study group (n=250)		Effectiveness of interventions %
		First time	Second time	Before	After	
Breast self-examination practice is satisfactory	Number (%)	11 (4,4)	12 (4,8)	24 (9,6)	141 (56,4)	**+478,4**
	p	0,853		**<0,001**		

Interpret: After the intervention, both the rate of practicing breast self-examination and the total practice score were higher in the study group than in the control group. The intervention efficiency in terms of breast self-examination practice rate was 478.4%.

Table 3.32. The relationship between the practice of breast self-examination after the intervention and the socio-demographic characteristics of the intervention group of women (n=250)

Characteristic		Practice breast self-examination		OR [95%CI]	P (χ^2)
		Unsatisfactory	Satisfactory		
Place	Cat Hai	64 (64,0)	36 (36,0)	4,14 [2,34-7,36]	<0,001
	Thuy Nguyen	45 (30,0)	105 (70,0)		

Interpret: The rate of satisfactory breast self-examination was different between the groups of women in Thuy Nguyen and Cat Hai (70.0% versus 36.0%, p<0.05).

3.3.2. Effectiveness of interventions with healh staffs

Table 3.38. Effective in improving the general knowledge about breast cancer of health staffs

Time / Knowledge	Before (n=120)	After (n=90)	p	Efficiency index%
Good general	54 (45,0)	75 (83,3)	**<0,001**	**+85,1**
Total knowledge score (Mean ± SD)	26,0 ±5,42	29,1 ±3,02	**<0,001***	**+11,9**

**Mann Whitney test*

Interpret: After the intervention, the percentage of health staffs with satisfactory general knowledge about cancer and the average score of knowledge increased compared to before the intervention ($p<0.05$). The efficiency index of changing the general knowledge rate reached 85.1% and the total score change reached 11.9%.

Table 3.39. Effectiveness of intervention on improving breast examination skills of health staffs

Breast examination skills	Before (n=120)	After (n=90)	p	Efficiency index %
Preparation and questioning				
Satisfactory (SL, %)	64 (53,3)	89 (98,9)	**<0,001**	**+85,4**
Breast examination				
Satisfactory (SL, %)	16 (13,3)	90 (100,0)	**<0,001**	**+651,8**

Interpret: After the intervention, the rate of health staffs in all two skills increased more than before the intervention ($p<0.05$). The effectiveness index of changing the ratio of preparation and questioning skills reached 85.4%. The effective index of changing breast examination skills reached 651.8% ($p<0.05$).

Chapter 4 : DISCUSSION

4.1. Knowledge, attitude and practice (KAP) of women in early detection and prevention of breast cancer in 2 districts Thuy Nguyen and Cat Hai, Hai Phong in 2017.

Knowledge - attitudes of women about early detection and prevention of breast cancer.

The figure 3.1 show that the rate of general knowledge is only 24.3%. Specifically, with the knowledge of cancer symptoms, the most known symptom at both locations is *palpable tumor* (83.25%), followed by *Small lymph node in axillary fossa* (66.67%), *Blood-colored discharge in nipples* (64.46%), *Change in color and skin characteristics* (62.26%) and *Change in breast shape* (58.47%). The two lowest known symptoms are *Contraction or ulceration* (46.83%) and *Nipple asymmetry* (48.32%) (table 3.3). Within the framework of the study, we only selected common symptoms that women can recognize for early detection. Thus, most of the study subjects knew the basic symptoms of BC. This is an important sign in early recognition of BC, helping women to detect the disease early to go to the necessary specialist hospital.

Of all knowledge components, knowledge about cancer risk factors has the lowest correct answer rate. Our results are similar to the results of author Nguyen Minh Phuong in Can Tho city [88]. In that study, knowledge about risk factors for the disease also accounted for the lowest rate, only 19.6% of women had correct knowledge about this content.

Regarding attitudes, the table 3.6 show that the rate of women with good attitudes about BC is quite high, most of them are over 70%. Our results of this study are quite similar to that of author Nguyen Huu Chau, about the general attitude, over 80% have a positive attitude (urban women are 86.5%; rural women are 79.8%) [7]. This result once again shows the interest of the people in the study area with BC, the positive attitude will help them easily implement preventive measures and detect the disease early, reducing the burden of disease in the community. Through

univariate and multivariate analysis, three factors recorded that may be related to women's general knowledge about BC are education level, had access to information about BC and accommodation. For attitudes, the only relevant factor was accommodation in Cat Hai compared to Thuy Nguyen with aOR = 4.61 (95%CI: 1.84-11.53) (table 3.10).

***Practice early detection and prevention of breast cancer in women**

In practice for early detection and prevention of BC, research results show that only 55.11% of women have ever had a breast examination, 6.17% of women have had periodical breast examination; 57.14% of women practiced breast self-examination at home, but only 6.79% of women satisfactory at practice breast self-examination (table 3.8). These are very interesting results. Only half of women have ever had a breast exam and less than one in 10 women have periodical breast exams for early detection of BC and related diseases. Factors related to the practice of periodical breast examination, through univariate analysis and multivariable regression model, show that there is only an association between periodical breast examination and women's education level. Women with high school education or higher are 2.33 times more likely to have periodical breast exams than women with lower secondary education (95% CI 1.38 – 3.92, $p<0.001$).

For breast self-examination practice, from univariate analysis, there are five factors: age > 40 years, ever access to media information, place of residence in Cat Hai, satisfactory knowledge and positive attitude are all important factors. These factors increase the likelihood of performing breast self-exams. However, in the multivariable model, only having access to media information, accommodation in Cat Hai, and knowledge of BC increased the likelihood of having breast self-examination practice. In addition, through the observation of the checklist, we did not find any factors related to the satisfactory practice of breast self-examination of women in Cat Hai and Thuy Nguyen. Research in Iran by author Fariba Teleghani in 2019 also shows barriers in the practice of women's breast self-examination. Thus, to increase the practice rate of BC and early detection, improving the people's

knowledge and attitudes about BC, paying attention to those with low educational attainment, as well as measures to promote access to media information and provide services suitable for the area, those are all essentials.

4.2. Knowledge, attitude, practice (KAP) of commune health staffs in early detection and prevention of breast cancer in 2 districts of Thuy Nguyen and Cat Hai, Hai Phong in 2017

Knowledge, attitudes, and skills of commune health staffs on early detection and prevention of breast cancer.

The rate of health staffs with general knowledge about cancer in both districts is 45%. In which, the rate in Cat Hai is 44.4%, the rate in Thuy Nguyen is 40.5%, and there is no difference between the two districts (figure 3.3). This shows that there are gaps in the knowledge of health workers, the knowledge about cancer is only reached in the basic content groups. In Vietnam, to our knowledge, there are very few studies on the knowledge, attitudes, and skills of health staffs in the early detection of BC. Some studies are mainly on assessing the status of the disease as well as the risk factors of people of different ages. The results of our health staffs' knowledge of BC are also much higher than that of a study in Saudi Arabia by author Heena Humariya conducted in the same period from 2017 to 2018. This difference may be related to the higher percentage of doctors in our study and more seniority.

Regarding attitudes about BC, health staffs in both districts have a positive attitude about cancer with a high of over 80%. Moreover, the rate of having more than 5 positive attitudes reached 91.7%. No difference was observed between the two districts (Table 3.17). Our result is much higher than the study in Saudi Arabia, where the rate of positive attitude is less than 20% [102]. This result shows that although knowledge is still limited on some contents, the positive attitude of health staffs will increase the feasibility of BC screening programs if implemented right from the primary health care level such as commune health stations.

In summary, knowledge, and practice on prevention and early detection of BC among health staffs in charge of obstetrics and gynecology in some coastal and island districts of Cat Hai and Thuy Nguyen are still inadequate, although the prevalence positivity is quite high. It is necessary to have appropriate interventions to improve these problems, in order to improve the capacity for early BC diagnosis right from the primary health care level.

4.3. The effectiveness of media of health education interventions on knowledge, attitudes, and practices of women and health staffs in early detection and prevention of breast cancer.

4.3.1. Effectiveness of intervention on women's knowledge, attitudes, and practices

On the basis of positive changes in study groups, the intervention results are also more evident when changing both general knowledge and total knowledge scores in the intervention group. The rate of satisfactory general knowledge increased from 32.4% before the intervention to 82.0% after the intervention ($p<0.001$). The mean score of all points of knowledge increased from 19.9 ±3.58 to 25.8 ±3.72 ($p<0.001$). In the control group, the rate of general knowledge increased from 36.4% to 40.8% ($p>0.05$) and the total score increased from 20.0 ±3.74 to 20.9 ±3.47 ($p<0.001$) (Table 3.29). Thus, in the study groups, we see that the intervention effect affects all aspects, but the most obvious is the change of knowledge about the risk factors for BC. Understanding risk factors will help women be more proactive in preventing disease for themselves, as well as for their families and communities.

Regarding practice, in the group of women who received the intervention, the rate of practicing breast self-examination reaching 4 steps increased significantly, from 9.6% to 56.4%, the effectiveness of the intervention on the rate of practicing breast self-examination reaching ≥4 steps is 478.4%. The average score of breast examination practice also increased from 2.96 ± 0.37 points to 4.46 ± 1.54 points, the overall intervention efficiency reached 47.6% (Table

3.30). Compared with the control group, no statistically significant change was noted. The study by author Abera in Ethiopia also showed that the percentage of practicing breast examination increased from 16.4% to 70.5% after the intervention and, the mean score of practice increased by 0.56 points [106].

Considering some socio-demographic characteristics affecting knowledge and practice scores after the intervention, we found that the age >40 group had a higher increase in the general knowledge score, with scores in the group under 40 age was 3.01 ± 0.79 and group over 40 years old was 3.22 ± 0.80, the difference was statistically significant with $p < 0.05$ (Table 3.31). The factor analysis related to general knowledge in the horizontal survey period showed that age >40 years was a factor that increased the likelihood of having good knowledge in the univariate analysis, but no difference was observed in the analysis multivariable product. This suggests that the group of women over 40 years old may be more interested in the intervention program because it is known that advanced age is one of the risk factors for BC.

4.3.2. Effectiveness of interventions with health staffs.

In general, after the intervention, the percentage of health staffs with satisfactory general knowledge about BC and the average score of knowledge increased compared to before the intervention ($p<0.05$). The efficiency index of changing the general knowledge rate reached 85.1% and the total score change reached 11.9% (Table 3.36).

For grassroots health staffs, clinical breast examination and breast ultrasound are two commonly used techniques due to the characteristics of the facility. However, in the intervention communes, ultrasound machines are not available, so we only evaluate by practicing clinical breast examination through the checklist with two main skill components, preparation and questioning, and medical examination. After the intervention, the percentage of health workers's satisfactory preparation skills and asking questions increased from 53.3% to 98.9%; and the mean score

of practice increased from 5.56 ± 0.96 to 7.8 ± 1.03 compared to before intervention ($p<0.05$). The effectiveness index of changing the ratio of preparation and questioning skills reached 85.4% and the total score change reached 40.2%. Regarding the medical examination skill score, the average score increased more than 2 times compared to before the intervention and the rate of over 6 points also reached 100%. The effective index of changing medical examination skills reached 651.8% and the mean score was 147.5% ($p<0.05$) (table 3.37).

Our study is one of the few that has performed an intervention on health staffs. Because, health staffs should be people with good knowledge and practice to be able to advise and examine people. These results show us that there is still a sizable gap in the grassroots health platform that needs to be addressed. It is also worth mentioning that the health staffs selected to participate in the study are all people in charge of obstetrics and gynecology or the reproductive health care department of the locality, in which the percentage of health staffs who are midwives and doctors accounts for quite high. The change in knowledge and practice after the intervention in our study is very significant, showing the feasibility of the intervention, which is the basis for recommendations to policy managers on the development and maintain a continuing training program for grassroots health staffs, to ensure that their knowledge and skills are supplemented and updated.

CONCLUSION

1. Knowledge, attitude and practice (KAP) of women in early detection and prevention of breast cancer in 2 districts Thuy Nguyen and Cat Hai, Hai Phong in 2017

- The rate of women's general knowledge about cancer in both districts is 24.3%. In which, it is 40.8% in Cat Hai, 20.7% in Thuy Nguyen ($p<0.05$).
- The percentage of women with positive general attitudes about BC in both districts is 90.5%, in which, Cat Hai is 97.6%, Thuy Nguyen is 88.9% ($p<0.05$).
- In the practice of early detection and prevention of BC, only 55.11% of women have ever had breast examination, 6.17% of women have had periodical breast examination; 57.14% of women practice breast self-examination at home, but only 6.79% of women satisfactory practice breast self-examination at home.
- Factors related to women's knowledge of BC: women with a high school education or higher are 1.5 times more likely to gain knowledge than at a lower secondary school level (95% CI: 1.12-2.02); women who have ever had access to media information about BC have 2.8 times higher knowledge than the group who have never had access (95% CI: 1.54-5.09); Women in Cat Hai have 2.49 times higher knowledge ability than women in Thuy Nguyen (95%CI: 1.79-3.44).
- Factors related to women's attitudes about BC: accommodation in Cat Hai compared to Thuy Nguyen with aOR = 4.61 (95%CI: 1.84-11.53).
- Factors related to practice on early detection of BC are: women with high school education and above are 2.33 times more likely to have periodical breast exams than women with lower secondary education. (95%CI 1.38 – 3.92, $p<0.001$); women who have had access to media information about BC (aOR=5.67), accommodation in Cat Hai (aOR=4.66), and satisfactory knowledge about BC reaching (aOR=2.41) increase the likelihood of practicing breast self-examination.

2. Knowledge, attitude, practice (KAP) of commune health staffs in early detection and prevention of breast cancer in 2 districts of Thuy Nguyen and Cat Hai, Hai Phong in 2017

- The rate of health staffs with satisfactory general knowledge about BC in both districts is 45%. In that percentage, the rate in Cat Hai is 55,6%, and in Thuy Nguyen is 40.5% ($p>0.05$).
- The rate of health staffs with positive attitudes about BC in both districts reached 91.7%. In which, the rate in Cat Hai is 94.4%, in Thuy Nguyen is 90.5%, and there is no difference between the two districts.
- Breast examination skills: the results show that health staffs have better skills in preparing and questioning patients, with 53.3% passing. However, when performing breast examination, only 13.3% of health staffs were satisfactory.

3. The effectiveness of media of health education interventions on knowledge, attitudes, and practices of women and health staffs in early detection and prevention of BC

Effective intervention on knowledge, attitude, and practice of women

- After the intervention, the rate of general knowledge and total knowledge score were higher in the study group than in the control group. The effectiveness of the intervention in terms of general knowledge rate was 141.0% and the average knowledge score was 25.1%.
- After the intervention, the rate of satisfactory practice breast self-examination was higher in the study group than in the control group. The intervention efficiency in terms of breast self-examination practice rate was 478.4%.
- Factors related to the satisfactory practice of breast self-examination after intervention: women in Thuy Nguyen have a higher rate of practice than in Cat Hai (OR=4.14, $p<0.05$).

Effective interventions with health staffs

- After the intervention, the percentage of health staffs with satisfactory general knowledge about BC and the average score of knowledge increased compared to before the intervention ($p<0.05$).

The efficiency index of changing the general knowledge rate reached 85.1% and the total score change reached 11.9%.

- After the intervention, the percentage of health staffs with satisfactory practice breast examination and the average score of practice increased compared to before the intervention ($p<0.05$). The effectiveness index of changing the ratio of preparation and questioning skills reached 85.4%. The effective index of changing breast examination skills reached 651.8% ($p<0.05$).

RECOMMENDATIONS

- It is necessary to build and develop a community intervention program on increasing people's knowledge about BC, in order to improve the rate of self-diagnosis, early detection and prevention of BC in the community.
- Health education programs need to be diverse in form, and suitable for different audiences in the community, to ensure fairness in accessing and using health services.
- For grassroots health workers, it is necessary to have a continuous training program to supplement and update their knowledge and improve their capacity to advise, examine and detect BC early right from the grassroots health level.