

Needs According to the Problems of Mammography Education

Dong-Hee Hong, Hong-Ryang Jung, Cheong-Hwan Lim, Woo-Taek Lim, Young-Cheol Joo

Abstract: Mammography is a difficult technique, but there is no phantom for education. Therefore, we analyze the need and necessity to produce the phantom that meets the training needs. Data collection was performed by 199 independent radiological technologists in the breast and breast clinic of six hospitals except Jeju Island. The independent t-test and one-way ANOVA were conducted to determine the relationship between the demographic characteristics of the radiologist and the mothers' Duncan was used for statistical analysis.

There was no statistically significant difference in perception and attitude according to demographic and statistical characteristics. Attitudes and attitudes according to job characteristics were influenced only by working style, by mammography education, and by education need.

The results of the questionnaire showed that the education conditions of most mammography radiologists were difficult and the training of mammography was necessary.

Keywords : Clinical, Education, Mammography, Needs, Problems

I. INTRODUCTION

According to the lifestyle, the incidence of breast cancer is increasing and it is ranked as the first female cancer incidence in Korea [1]. Therefore, regular mammograms were performed, and the number of mammograms increased as well. Women's hospitals conducting nationwide breast shots feel the necessity of taking breast - shots awareness more seriously considering the increased number of cases together with the check - up season every year.

In reality, mammography has both sides in which the radiation exposure is disturbed, which can cause the patient to suffer radiation damage and cause severe disability [2],[3]. Therefore, radiologists working in clinical practice should be careful not to be exposed to unnecessary radiation due to retaking.

The most useful thing for early detection of breast cancer is mammography. Mammography is a diagnostic method that

can diagnose the shape and size of the mass, dilation of the mammary gland, fibrosis, and calcification.

Mammography is performed with a basic examination of the cranio-caudal (CC) and mediolateral-oblique (MLO) directions [4],[5],[6]. Therefore, it is considered that a process of knowing all the examination methods for mammography and performing a lot of practice in advance for various patients is necessary[7],[9],[10].

However, at present, there are not many schools that teach mammography during the regular course in the university. Even if they are established, only the theory about it is taught and accurate practice is not done. This is a sensitive area where practicum can be done, but there is not enough room for recognition and practical training.

The purpose of this study is to investigate and analyze the essential conditions and needs of mammography education which can find out the problems of mammography education and apply it directly to the clinic.

II. MATERIALS AND METHODS

A. Objectives

This study was a descriptive study to analyze the problems and needs of mammography education. We used the radiologist who works in the mammography room of the National Dental Hospital in Korea. From November 1, 2017 to December 30, 2017, a total of 202 questionnaires were distributed. A total of 199 copies (98.51% recovery rate) were used as the analytical data except for the three insufficient responses and the non-response questionnaire in the collected questionnaires.

B. Methods

This study modifies and complements the structured questionnaire of Kim Jung Hoon [8], and consists of 7 items of demographic characteristics, 9 items of educational needs, 9 items of education needs, 11 items related to mammography and attitude, and 10 items of self - esteem. A total of 37 items were composed. The self-esteem items related to the breast-shooting awareness and attitude except for the demographic characteristics, education, and educational needs items were Likert scale of 5 points (1 = highly agree, 2 = yes, 3 = moderate, 4 = not), 5 = not very much) [8].

As shown in Table I, the Cronbach's alpha coefficient of the questionnaire used was 0.828 for breast image recognition and attitude, and 0.713 for self-esteem.

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Table-I: Formation of survey to measure items

Variables	Items	α
Dependent Variable	Mammography awareness and attitudes	0.828
	The need for a mammography phantom(6)	
	The usefulness for a mammography phantom(3)	
	The need for a mammography education (2)	
	Self-esteem	0.713
	Job confident(5)	
	Job depression(5)	

C. Statistic analysis

The collected data were analyzed using SPSS 24.0 statistical package and frequency analysis was conducted to examine the demographic characteristics and educational needs of radiologists.

The independent t-test and one-way ANOVA were conducted to determine the relationship between the demographic characteristics of the radiologist and the mothers' Duncan was used for statistical analysis. The significance level was 95% (0.05 or less).

III. RESULTS

A. General Characteristics of Breast Imaging Radiologists

As shown in Table II, the demographic characteristics of the radiologists participating in this study were 94.5% (188) in women and 5.5% (11) in men. The most common age group among the 20-29 age group was 48.2% (96 persons), followed by 41.2% (82 persons) in the 30-39 age group and 10.6% (21 persons) 53.3% (106 persons) were married, and 46.7% (93 persons) were married. The final education level was followed by 57.3% (114 students), 34.7% (69 students), and 8.0% (16 students). Radiation history was highest in 36.2% (72 patients), less than 5 years (33.2%), more than 5 years (20.6%), less than 1 year And 10.1% (20 persons), respectively. The number of working hospitals was the highest at 50.3% (100 persons) in general hospitals, followed by 23.6% (47 persons) in general hospitals, 19.6% (39 persons) in hospitals and 6.5% (13 persons) in hospitals. Gyeonggi-do was the highest with 47.7% (95) in Seoul, followed by Gyeonggi-do with 20.6% (41), Gyeongsang-do with 14.6% (29), Chungcheong province with 7.0% with 14, Cholla province with 6.0% 8).

Table-II : General characteristics of the radiotechnologist in mammography room

(n=199)			
Characteristics	Categories	N	%
Gender	Male	11	5.5
	Female	188	94.5
Age(yrs)	20~ 29	96	48.2
	30~ 39	82	41.2

	≥ 40	21	10.6
Marriage	Married	93	46.7
	Single	106	53.3
Final education	Technical college	69	34.7
	College	114	57.3
	Master	16	8.0
Career(yrs)	<1	20	10.1
	1~ 5	72	36.2
	5~ 10	41	20.6
	>10	66	33.2
Hospital scale	clinic	39	19.6
	hospital	13	6.5
	general Hospital	47	23.6
	Advanced General Hospital	100	50.3
Working area	Seoul	95	47.7
	Gyeonggi-do	41	20.6
	Chungcheong-do	14	7.0
	Gyungsang-do	29	14.6
	Jeolla-do	12	6.0
	Gangwon-do	8	4.0

B. Job Characteristics of the radiotechnologist in mammography room

Table III shows the frequency analysis of the job characteristics of the radiologists working in the mammography room. The average number of working hours was 75.4% (150 persons) for 8 hours, 19.1% (38 persons) for workers who worked more than 8 hours, and 5.5% (11) for workers who worked less than 8 hours. In the working hours, the wearing of the radiation dosimeter was the highest at 77.4% (154 persons) at all times, 14.1% (28 persons) were wearing most of them, 6.0% (12 persons) And 2.5% (5 persons) did not. The most common reason for not wearing was the risk of loss of work (58.8%, 10 persons), and it was the same with 17.6% (3 persons) And 5.9% (1 person) was the least, because it would be disadvantageous due to overexposure. The most frequent cause of breast cancer was 38.7% (77 patients), 33.7% (67 patients), almost 15.1% (30 patients), slightly more 12.1% (24 patients) (1 person) in the order of the most or less common. 69.3% (138 persons) knew the measurement result of personal exposure dosimeter, and 30.7% (61 persons) did not know it. The actual results of quarterly measurements were 0.01 to 1.0 mSv in 60.8% (121 patients), 1.1 to 2.0 mSv in 10.6% (21 patients), 2.1 to 3.0 mSv, 3.1 to 4.0 mSv, % (1 person).

There were 35.2% (70 patients) of hands and feet, 30.2% (60 patients) of thyroid gland, 22.1% (44 patients) of eyes, 6.5% (13 patients) of gonads and 6.0% (12) in order. 86.9% (173) of them answered that they were not dedicated to mammography, and 13.1% (26) said that most of them were doing mammography and other photography. Of the total radiological history, 49.7% (99 patients) had the experience of



performing mammography in the first to fifth years, 23.6% (47 patients) in less than 1 year, 16.1% (32 patients) And 10.6% (21 persons) for more than 10 years.

Table-III : Job characteristics of the radiotechnologist in mammography room

(n=199)

Characteristics	Categories	N	%
Business hours	<8	11	5.5
	8	150	75.4
	>8	38	19.1
Wear an exposure dosimeter	I do not wear it at all	5	2.5
	I do not wear it	12	6.0
	It's mostly worn	28	14.1
	Always wear	154	77.4
Why does not wear a dosimeter exposure	It hurts my business and it's annoying	3	17.6
	There should be no effect on radiation exposure	3	17.6
	Overexposed will be penalized	1	5.9
	There is a risk of loss during work	10	58.8
Exposure feel	Few	30	15.1
	Little	77	38.7
	Is average	67	33.7
	A little more	24	12.1
	A lot	1	0.5
Exposure dose (mSv)	I do not know	54	27.1
	0.01~ 1.0	121	60.8
	1.1~ 2.0	21	10.6
	2.1~ 3.0	1	0.5
	3.1~ 4.0	1	0.5
	4.1<	1	0.5
Area of exposure	Eye	44	22.1
	Thyroid	60	30.2
	Gonad	13	6.5
	Hand & Foot	70	35.2
	etc.	12	6.0
Only mammography	Yes	26	13.1
	No	173	86.9
Mammography Career(yrs)	<1	47	23.6
	1~ 5	99	49.7
	5~ 10	32	16.1
	>10	21	10.6

C. Recognition and attitude toward mammography education and phantom necessity according to the general characteristics of breast radiologists

As shown in table IV, as a result of studying the awareness and attitude toward breast imaging education and phantom necessity according to the demographic characteristics of the radiologists working in the mammography room, statistical analysis was conducted using statistical methods such as sex, age, marital status, career, (P<0.05). The marital status was 3.82 ± 0.47 (93 persons), 3.98 ± 0.52 (16 persons), and 3.98 ± 0.47 3.83 ± 0.49 (20 persons), hospital size 3.86 ± 0.43 (13

persons), and work area 3.88 ± 0.40 (8 persons) were the highest.



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Table-IV : Differences in cognition, attitude according to general characteristics

(n=199)							
Characteristics	Categories	N	Mean	SD	t/F	P	Duncan
Gender	Male	11	4.02	0.39	1.92	0.05	-
	Female	188	3.72	0.51			
Age (yrs)	20~ 29	96	3.68	0.53	1.84	0.16	-
	30~ 39	82	3.82	0.47			
	≥ 40	21	3.68	0.52			
Marriage	Married	93	3.81	0.47	1.82	0.69	-
	Single	106	3.68	0.53			
Final Education	Technical college	69	3.74	0.44	2.08	0.12	-
	College	114	3.71	0.54			
	≥ Master	16	3.98	0.52			
Career (yrs)	<1	20	3.83	0.49	0.45	0.71	-
	1~ 5	72	3.69	0.53			
	5~ 10	41	3.74	0.56			
	>10	66	3.77	0.46			
Hospital scale	Clinical	39	3.646	0.512	0.78	0.50	-
	Hospital	13	3.860	0.437			
	General Hospital	47	3.779	0.468			
	Advanced General Hospital	100	3.744	0.532			
Working area	Seoul	95	3.76	0.52	0.71	0.61	-
	Gyeonggi-do	41	3.75	0.55			
	Chungcheong-do	14	3.82	0.39			
	Gyung-sang-do	29	3.59	0.53			
	Jeolla-do	12	3.75	0.45			
	Gangwon-do	8	3.88	0.40			

†; Duncan's post hoc analysis did not reveal any significant differences between groups.

D. Recognition and attitude toward mammography education and phantom necessity according to job characteristics of breast radiographers

As shown in table V, as a result of studying the awareness and attitude about mammography training and phantom necessity according to the job characteristics of the radiologists working in the mammography room, it was found that the working style ($p < 0.05$) affected the recognition and attitude, And 3.77 ± 0.52 (173), respectively, which were statistically significant. 3.76 ± 0.41 (17), 3.87 ± 0.46 (13), 3.80 ± 0.46 , 3.80 ± 0.46 , and 3.80 ± 0.36 , respectively. 0.57 (21) were the highest.

Table-V : Differences in self-esteem according to general characteristics

(n=199)														
Characteristics	Categories	N	Mean	SD	t/F	P	Duncan							
Business hours	<8	11	3.80	0.36	0.11	0.88	-							
	8	150	3.74	0.51										
	>8	38	3.72	0.56										
Wear an exposure dosimeter	Yes	17	3.74	0.41	0.02	0.98	-							
	No	182	3.74	0.52										
Exposure feel	Little	107	3.76	0.48	0.24	0.78	-							
	Is average	67	3.71	0.49										
	A lot	25	3.73	0.66										
Area of exposure	Eye	44	3.82	0.50	1.83	0.12	-							
	Thyroid	60	3.79	0.45										
	Gonad	13	3.87	0.46										
	Hand & Foot	70	3.66	0.57										
	etc.	12	3.48	0.39										
Only mammography	Yes	26	3.53	0.33	-2.31	0.02	-							
	No	173	3.77	0.52										
Mammography Career (yrs)	<1	47	3.82	0.50	0.814	0.48	-							
	1 ~ 5	99	3.69	0.51										
	5 ~ 10	32	3.75	0.47										
	>10	21	3.80	0.57										

† ; Duncan's post hoc analysis did not reveal any significant differences between groups.

E. Awareness and Attitude of Breast Imaging Education and Phantom Necessity according to Breast Imaging Education Needs and Educational Needs of Breast Imaging Radiologists

As shown in table VI, as a result of studying the awareness and attitude about mammography training and phantom necessity according to whether breast radiographers were working in the mammography room and education needs, it was found that the breast radiograph training ($p < 0.05$). In the college, breast aesthetics were 3.81 ± 0.48 (177), the highest, and statistically significant. 3.77 ± 0.52 (170 person), 3.82 ± 0.59 (78 person), 3.86 ± 0.55 (58 person), and 3.86 ± 0.55 (58 person) 3.89 ± 0.59 (19 person), 3.74 ± 0.52 (185 person), and 3.92 ± 0.54 (24 person), respectively

Table-VI : Differences in cognition, attitude according to job characteristics

(n=199)							
Characteristics	Categories	N	Mean	SD	t/F	P	Duncan
Education	Yes	170	3.77	0.52	1.78	0.07	-



al Experience	No	29	3.59	0.41			
Education al Format	Only theory	63	3.77	0.43	1.52	0.22	-
	Only practice	29	3.62	0.47			
	Theory and practice	78	3.82	0.59			
Phantom Experience	Yes	58	3.86	0.55	1.67	0.09	-
	No	112	3.72	0.50			
Phantom Inconvenience	Not soft	19	3.89	0.59	1.21	0.30	-
	Different from human body	68	3.75	0.52			
	Discomfort of anatomy	23	3.83	0.42			
Use phantom outside	Yes	14	3.77	0.36	0.19	0.84	-
	No	185	3.74	0.52			
College of mammography	Yes	177	3.81	0.48	5.82	<0.00	-
	No	22	3.19	0.35			
College of mammography	Not	38	3.67	0.51	1.48	0.22	-
	1	24	3.92	0.54			
	2~3	80	3.76	0.51			
	>4	57	3.69	0.48			

† ; Duncan's post hoc analysis did not reveal any significant differences between groups.

IV. DISCUSSION

This study was conducted to investigate the perception, attitude, and self-esteem of breast cancer surgeons working in the mammography department. And the number of radiation education was not analyzed. As the knowledge level and attitude were significantly influenced by the regularly educated group, the number of radiation education mammography room were investigated And to present basic data for making mammography phantom[11].

V. CONCLUSION

This study was conducted to investigate the current state of awareness and attitude according to mammography training and phantom necessity of radiologists working in the mammography room. Factors influencing demographics, job characteristics, and educational needs were analyzed.

First, perceptions and attitudes according to demographic and statistical characteristics were not statistically significant.

Second, radiation protection according to job characteristics influenced recognition and attitude, and statistically significant.

Third, the perception and attitude according to breast education education needs and education needs were influenced only by receiving breast training at university and statistically significant.

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