

The Effect of the Education using the Breast Model on the Female College Students' Knowledge and Techniques of the Self-Examination of the Breasts

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Abstract

Objectives: For the early discovery of breast cancer, it is intended to verify the effects on the knowledge and the technologies after executing the practice education using a breast model for the breast self-examination. **Methods/Statistical analysis:** This was a quasi-experimental research with 38 persons in the experimental group and 37 persons in the control group. The breast self-examination education was carried out 60 minutes a day for 6 times in the experimental group. And, to the control group, the written guide to the breast self-examination was provided. **Findings:** 32 persons (84.2%) of the experimental group and 28 persons (78.7%) of the control group had the plan for an early medical checkup. As there were no statistically significant differences in two groups, the homogeneity was confirmed. Regarding the knowledge on the breast self-examination, the averages were increased 1.92 points in the experimental group and 0.97 points in the control group after intervention. Regarding the technologies of the breast self-examination, the averages were increased 3.65 points in the experimental group and 1.78 points in the control group after intervention. The experimental group was measured higher than the control group. **Improvements and applications:** It appeared that the practice education improves the knowledge on, and the technologies of, the breast self-examination.

Keywords: Breast Model, Breast Self-Examination, Female College Students, Knowledge, Technique

1. Introduction

The rate of occurrence of breast cancer among Korean women is 45.4 persons per 100,000 people. It has been showing the highest increasing trend among the member countries of the Organization for Economic Cooperation and Development (OECD). According to the National Statistical Office (NSO), in the year 2013, per 100,000 people of the population, the number of the women who got breast cancer was 177 persons in the 20's, 6848 people in the 30's and the 40's, etc. It appeared that the degree of the danger of the disease occurrence of breast cancer was

nearly 2.4 times higher among the women in the 20's than the 50's. Although, in this way, the incidence rate of breast cancer has been rapidly increasing among those who are in the 20's and the 30's, the national recommendation for the early diagnosis of breast cancer has been concentrated on those who are in the 30's and the 40's.

Although the accurate cause of breast cancer has not yet been revealed, the dietary life, the changes of the living environment, the late marriage and the lowering of the birthrate, the very early, first menstrual period, the late menopause, the increase of the time period of the exposure of the sexual hormones, the obesity, the harm-

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ful environment, etc. have been known to be the factors of the disease occurrence. When ¹ considering the social phenomena of Korea, including the late marriage, the low child births, etc., it has been forecast that the occurrences of breast cancer will be increased even more.

The survival rate² of breast cancer is as high as 90% when early detected. In contrast, the survival rate drops to less than 20% when it is discovered at the end. As it is a disease with high survival rate earlier it is discovered, it can be considered that the regular checkups for the early discovery before the symptoms appear are more important than anything else. Regarding the methods of the checkups for the early discovery of breast cancer, there are the breast self-examination, the clinical-examination, the mammography, etc. In ² recommended that all of these methods be carried out as they are mutually complementary. However, when ⁴ taking into account the economic burdens, the access to the medical organizations, etc., the method of the breast self-examination, which can be done easily at home, has been known to be the most efficient method.

Actually, according to the Cancer Center at the Seoul National University, 80% of the breast cancers were discovered early through the regular breast self-examinations everyday. Among the breast cancer patients⁴, the sizes of the tumors that were discovered among the women who carried out the breast self-examinations were smaller than those of the women who did not carry them out, there were less axillary lymph transitions, the survival rate was high, and the women were in a phase in which the medical treatment is possible. It⁵ has been reported that, as a result of having carried out a breast self-examination every month with the women, the breast cancer mortality rate of the young women in the 20's have been decreasing gradually. In this way, the breast self-examination is an effective method for preventing breast cancer. Not only has it been verified already through the many advanced researches but, also, it is a simple and convenient medical checkup which can be done by the women by themselves. As⁶ it is carried out regularly once every month, it is a method that has the strong point of easily detecting the small changes of the body that have been newly generated by getting accustomed to one's own shapes of the breasts, touches, etc.

Recently, the ages of the occurrences of breast cancer have been getting lower. In the opposite way, the perception of the need for the breast self-examination of the women in their 20's is lower than the perception of the women in their 30's and the women in their 40's. Also, the younger the breast cancer patient, the mortality risk has been appearing higher. Because of this⁷, not only has it captured the 2nd rank in terms of the disease incidence of women's cancer in Korea, but, in order to decrease the disease incidence of breast cancer, which has been in the increasing trend every year, it is recognized that the awareness improvement for discovering breast cancer early with the women in their 20's, who have been in an increasing trend recently, and a strategy for heightening the performance rate of the self-examinations are needed.

If we take a look at the subjects of the researches on the breast self-examinations that have been carried out in Korea until now, they have still been concentrated on the adults whose ages were over the middle age. As such⁸, the actual circumstance is that the women in the 20's have been excluded from the researches on breast cancer by relatively straying from the objects of the interests.

As a result, in order to systematically carry out the breast self-examinations, which comprise the most effective method for preventing breast cancer among the women in their 20's, with the female undergraduate school students in their 20's, who have little opportunities for health education, differently from the junior high schools and senior high schools, as the subjects, in order to efficiently carry out the breast self-examinations, there is a need to improve the knowledge and the technologies for the breast self-examinations. When considering such a context, in order to discover and prevent early the breast cancer among the women in their 20's, and in order to efficiently carry out the breast self-examinations, there is a need to improve the knowledge and the technologies regarding the breast self-examinations. Accordingly, in this research, with the female undergraduate school students located in one region as the subjects, the knowledge and the technologies regarding breast cancer and the breast self-examination will be taken a look at. And the research intends to contribute to the decrease of the incidence rate of breast cancer by verifying the effects

after carrying out the practice education using the breast model. The hypotheses of this research are the following:

Hypothesis 1. The level of the knowledge on the breast self-examination of the female undergraduate school students experimental group who had participated in the breast self-examinations will be improved more than that of the control group.

Hypothesis 2. The level of the technologies regarding the breast self-examination of the female undergraduate school students experimental group who had participated in the breast self-examinations will be improved more than that of the control group.

2. The Literature Review

Because of the Westernized eating habits, the changes of the forms of the childbirths, the reduction of the amount of the physical activities, the phenomenon of avoiding breast-feeding, the indiscreet hormone therapy, the increase of the obese population, etc., differently from the women of the West, the women of Korea get breast cancer easier and the early discovery is difficult. Because of this⁷, the patients of breast cancer in Korea have been showing the trend of the age of the occurrence getting lower compared to the foreign countries. Although⁹ the method of preventing breast cancer has not yet been revealed, the utmost is the most effective method of discovering early.

Most of the risk factors of cancer are closely related to the life habits of the individuals. In the case of women, the change of the dietary habit, including the fatty foods, is important. Regarding¹⁰ the breast cancer which has already started occurring, as for the secondary prevention for the early discovery and the medical treatment at the right time, there are the methods of the mammography, the clinical examination, and the breast self-examination (BSE). Although the mammography is the most effective in diagnosing early breast cancer, because the medical facilities must be used, the accessibility falls. In contrast, the breast self-examination is not only easy and safe but, also, economical. And¹¹, as an act that increases the sense of responsibility regarding the health management of the women, themselves, the degree of the utilization is high to the public. When¹² taking into account the point that, in actuality, around 90% of the breast cancer cases get

discovered for the first time by chance or through self-examination, the regular breast self-examinations reduce the number of the people who die from breast cancer. And¹³ they are the important actions that promote the health which can contribute to the promotion of the maintenance of the health on the part of women.

Hence, ¹⁴it is necessary to encourage the breast self-examinations to target breast cancer of the young women in their 20's, which has been increasing recently, there is a need to encourage the carrying out of with them as the subjects. In the case of the foreign countries, a lot of the education regarding the breast self-examination has been carried out with the young women as the subjects. However, in Korea, most¹⁵ of the researches on the early medical checkup of breast cancer were the researches with the women in their 50's as their subjects. And, regarding¹⁶ the researches with the women in their 20's as the subjects, because of the reason that they were not of the affected ages of breast cancer, they have not been the objects of the big interest. As such, the actual circumstance is that the researches on the breast self-examination are desperately needed.

By the way, it¹⁷ has been appearing that the reason why it became known that the breast self-examination has not been put into practice well is because of the insufficiency of his knowledge on the breast self-examination.

And Ba'amer Abobakar Ahmed etc.¹⁸ said that the insufficiency of the knowledge on breast self-examination acts as a disturbance factor in carrying out the breast self-examination. Yang¹⁹ said that the practice rates of the subjects who received systematic breast self-examination education was high. As a result, to increase the practice of breast self-examination, it is important to foster the knowledge on breast self-examination. And in²⁰ order to effectively carry out the breast self-examination, the unfolding of the PR activities, through education or the mass media, carried out side-by-side with the practice is needed. As a result, with the young women in their 20's, whose rate of occurrence of breast cancer has been quickly increasing recently, as the subjects, this research intends to carry out an effect evaluation regarding the knowledge and the technologies on breast self-examination after the practical education using a breast cancer model for the

improvement of the practice of the breast self-examination so that the breast cancer can be discovered early.

3. Proposed Work

3.1 The Research Design

This research provides the practice model education on breast self-examination with the female undergraduate school students as the subjects as shown in Table 1. After providing a written guide on the breast self-examination to the control group, in order to understand the effects on breast cancer and breast self-examination, the research was a quasi-experimental study conducted by a post-design of a non-equivalent control group.

3.2 The Subjects, Collecting Data and the Materials

The subjects of this research were 75 female undergraduate school students in their 20's at an undergraduate school located in City C, Province C. The allocation was made with 38 persons in the experimental group and 37

persons in the control group. The criteria for the selection of the research subjects were not having any history of breast cancer, the understanding of the details of this education, the possibility of questionnaire response, and acceptance of study participation.

For the number of the subjects, the minimum sample size needed for the t-test was calculated by using the program G*power 3.10. When the level of significance was 0.05, the effect size was 0.7, and the test power was 0.8, because the minimum personnel by each group was calculated to be 26 persons, the number of the subjects in this research is satisfied with the number of the samples. The data and materials collection and the prior investigation were executed by using a questionnaire regarding the knowledge on and the technologies of breast cancer and the early checkup after receiving the written agreement by two groups.

Regarding the experimental group, we, the two researchers, personally carried out the breast self-examination education by utilizing the model regarding the behaviors and the others of the like when discovering the following:

Table 1. Research design

	Pre-test	Intervention	Post-test
Experimental group	Knowledge on the early medical checkup of breast cancer Technologies for the breast self-examinations.	Education had been carried out 60 minutes a day over 6 times.	Knowledge on the early medical checkup of breast cancer Technologies for the breast self-examinations.
Control group	Knowledge on the early medical checkup of breast cancer Technologies for the breast self-examinations.	Provide the written guide on the breast self-examination	Knowledge on the early medical checkup of breast cancer Technologies for the breast self-examinations.

1. Functions of the breasts;
2. Symptoms of breast cancer;
3. Complications and the prognoses of breast cancer;
4. Need for early discovery;
5. Types of early discovery methods;
6. Importance and proper timing of breast self-examination;
7. Method of the breast self-examination;
8. Behaviors when having discovered an abnormal condition; Etc.

The education had been carried out 60 minutes a day over 6 times. Regarding the control group, the written guide on the breast self-examination was provided after the prior injection. Regarding the ex post facto investigation, the experimental group collected the data and the materials through the self-reporting method by using a questionnaire right after the education. The control group was performed in the same way as the experimental group immediately after the education.

3.3 The Research Tools

3.3.1 The knowledge on the Early Medical Checkup of Breast Cancer

The²¹ knowledge of breast self-examination means the knowledge of breast cancer and the knowledge of breast self-examination and behavior for early detection of breast cancer. And it utilizes the tools that have been corrected and supplemented by Choi²². With a total of 17 questions, the range of the scores was 0 point-1 point. The higher the score, it means that the knowledge is higher. In a research by Kim²³ the Cronbach's alpha was 0.86. And, in this research, the Cronbach's alpha was 0.92.

3.3.2 The Technologies for the Breast Self-examinations

Regarding the technologies for the breast self-examinations, the tools that were corrected and supplemented by Choi²⁴ based on the developments by Coleman and Pennypacker²⁵, were used. With a total of 19 questions, the range of the scores was 0 point-1 point. It means that, the higher the score, the more the knowledge. In the

research by Choi²⁴, the Cronbach's alpha was 0.94, and in this research, the Cronbach's alpha was 0.93.

3.4 The Method of Analyzing the Data

The data that were collected were analyzed by using the SPSS/WIN 23.0 program. The specific analysis method is as follows:

- (1) Regarding the general, special characteristics of the research subjects and the special characteristics of breast cancer and the early medical checkup, the frequency analysis, the average, and the standard deviations were used.
- (2) Regarding the general, special characteristics of the research subjects and the verification of the homogeneity regarding breast cancer and the early medical checkup, the t-test and the chi-square test were used.
- (3) The t-test was used to analyze the degree and effectiveness of the knowledge about the technical aspects of self-breast examination education in two groups before and after the intervention.

3.5 The Results of the Research

3.5.1 The Examination of the General, Special Characteristics and the Homogeneity

In Table 2, the average age of the subjects of the research was 20.0; the BMI was the average of 20.41(kg/m²). Regarding the experience of having had a breast disease, 38 persons (100%) in the experimental group said "No" and 34 persons (91.9%) of the control group said "No". Regarding the plan for an early medical checkup, it appeared that 32 persons (84.2%) in the experimental group had it and 28 persons (78.7%) in the control group had it. As, regarding all the variables related to the general matters, there were no statistically significant differences between the experimental group and the control group, the homogeneity of the two groups was confirmed

3.5.2 Hypothesis Testing

Hypothesis 1. Regarding the knowledge of the breast self-examination, the differences of the averages before and

Table 2. General characteristics and the homogeneity

Variable		Exp(n=38) n(%) Mean±SD	Con(n=37) n(%) Mean±SD	x or t	p
Age		19.78±1.29	20.24±1.57	-1.332	.176
BMI		20.40±2.20	20.42±2.30	-0.054	.626
Contraceptive pill	Yes	7(18.4)	2(5.4)	3.007	.083
	No	31(81.6)	35(94.6)		
Hormone Therapy	Yes	1(2.6)	1(2.7)	28.473	.000
	No	37(97.4)	36(97.3)		
Breast Disease	Yes	0(0)	3(8.1)	3.209	.073
	No	38(100)	34(91.9)		
Early diagnosis	Yes	12(31.6)	5(13.5)	3.490	.062
	No	26(68.4)	32(86.5)		
Self examination plan	Yes	32(84.2)	28(75.7)	0.853	.356
	No	6(15.8)	9(24.3)		

after the experiment were 1.92 points in the experimental group and 0.97 points in the control group as shown in Table 3. Although the experimental group was measured

higher than the control group, because there were no significant differences statistically ($t=1.781$, $p=.079$), the hypothesis was not supported

Table 3. Comparison of knowledge degree

Knowledge degree	Pre-test Mean±SD	Post-test Mean±SD	Pre-post difference Mean±SD	t	p
Experimental group	7.02±1.44	8.94±7.64	1.92±1.83	1.781	.079
Control group	6.67±1.85	7.64±1.67	.97±2.70		

Table 4. Comparison of technical level

Technical level	Pre-test Mean±SD	Post-test Mean±SD	Pre-post difference Mean±SD	t	p
Experimental group	6.26±2.48	9.92±0.85	3.65±2.71	2.67	.009
Control group	6.64±2.69	8.43±1.67	1.78±3.32		

Hypothesis 2. Regarding the technologies for the breast self-examination, the differences of the averages before and after the experiment were 3.65 points in the experimental group and 1.78 points in the control group as shown in Table 4. Although the experimental group was measured higher than the control group, because there were no significant differences statistically ($t=2.67$, $p=.009$), the hypothesis was not supported

4. Conclusion

This research is a quasi-experiment with the ex post facto design of the nonequivalent control group which was conducted in order to take a look at the effects on the knowledge and technologies regarding the breast self-examinations of the female undergraduate school students after applying the practical education using the

breast model. This is to improve the knowledge and the technologies regarding the breast self-examination of the female undergraduate school students in an area.

The time period of the collection of the data was from September 7, 2015 until September 14, 2015. The subjects of the research were 75 female undergraduate school students in their 20's at an undergraduate school located in City C, Province C. There were 38 persons in the experimental group and 37 persons in the control group. As for the results of the research, regarding the knowledge of the breast self-examination, the differences of the averages before and after the experiment were 1.92 points in the experimental group and 0.97 points in the control group. Although the experimental group was measured higher than the control group, because there were no significant differences statistically ($t=1.781$, $p=.079$), the hypothesis was not supported.

Regarding the technologies for the breast self-examination, the differences of the averages before and after the experiment were 3.65 points in the experimental group and 1.78 points in the control group. Although the experimental group was measured higher than the control group, because there were no significant differences statistically ($t=2.67$, $p=.009$), the hypothesis was not supported. As it appeared that, through the above results, the practical education using a breast model improves the knowledge and the technologies regarding the breast self-examination, in order to prevent the breast cancer among the women in their 20's, which has been increasing, it is thought that there is a need to develop a breast self-checkup program that can heighten the efficiency of the breast self-examination.

But, as this research was carried out with the female undergraduate school students in an area as the subjects, there is a limitation in generalizing the research results. And we propose that the researches utilizing the even more diverse media, including the videos, simulations, etc can be carried out in order to expand the subjects and maximize the effects of the education based on this research.

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