ORIGINAL ARTICLE

Effectiveness of Social Media on Knowledge, Self-efficacy and Breast Self-examination Practice in Women of Childbearing Age : Randomize Controlled Trial

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ABSTRACT

Introduction: Breast cancer is a malignant tumor that is still the number one killer for women. The lack of awareness of breast health in Indonesia can be seen from the increasing incidence of breast cancer every year. During the Covid 19 pandemic, access to hospital examinations such as mammography and SADANIS is minimal, so an independent action is needed for women, namely BSE. The number of women who routinely practice BSE is still tiny, social media is one of the efforts that can help increase awareness of BSE practices based on knowledge and self-efficacy. Instagram and Whatsapp are needed as promotional efforts on a larger scale can be reached by all women of childbearing age. Objective: determine the effectiveness of social media on knowledge, self-efficacy, and conscious behavior Breast Self Examination in women of childbearing age. **Methods:** This research is a randomized controlled trial with single blinded. Sample size is 60 people with convenience sampling to determine the intervention and control groups. Bivariate analysis use ANCOVA to see the difference score of the pretest and posttest scores and to see the effect of treatment. **Results:** Social media's effect on breast cancer knowledge of women of childbearing age with p-value = 0.00 (p < 0.05). There is an influence of social media on self-efficacy of BSE implementation for women of childbearing age with a p-value = 0.026 (p < 0.05). Social media influences the BSE behavior/practice of women of childbearing age with a p-value = 0.000 (p < 0.05). **Conclusion:** There is an influence of social media on breast cancer knowledge, self-efficacy, and BSE Behavior practice of women of childbearing.

Keywords: Knowledge, Behavior, BSE, Self-efficacy, Woman_childbearing_age

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INTRODUCTION

Breast cancer is a type of cancer that is very scary for women, both in developed and developing countries, including in Indonesia. According to Riset Kesehatan Dasar (Riskesda), in 2018, the prevalence rate of breast cancer with the highest cases in Indonesia was 42.1 per 100,000 population with an average depth of 17 per 100,000, and 6,701 points were estimated to occur in West Java. More than 80% of cases in Indonesia have been found at an advanced stage where treatment efforts are difficult to do. Early detection of breast cancer programs is essential.

Although it does not reduce the incidence of cancer but helps improve the prognosis, which can reduce mortality from breast cancer. Early detection of breast cancer can be done with ultrasound, mammography, SADANIS, and BSE. Early detection through ultrasound, SADANIS, and mammography must be checked at the hospital, while access is minimal during the Covid 19 pandemic. BSE is a breast self-examination that does not cost money, is harmless and has side effects, is easy to perform, and does not depend on the assistance of health workers.

BSE is an early detection effort for breast cancer, so it is useful for finding symptoms of breast cancer at an early stage, and treatment can be carried out earlier. Riset Penyakit Tidak Menular (2016) states that there are still a small number of women who do BSE, namely 25-30%, 53.7% of the people had never done BSE,

while 46.3% had done BSE, which proves the poor behavior and awareness of women in the early detection of cancer. Implementing BSE that is carried out regularly based on knowledge and self-efficacy will increase breast awareness and make the woman responsible for her breast health. Almost 85% of breast abnormalities are discovered for the first time by the sufferer (1).

Health promotion on BSE in Indonesia has been widely carried out. Still, most of the population is only in young women, while women of childbearing age (WUS) are rarely in the spotlight, even though WUS is very susceptible to breast cancer. And little access to information and low self-confidence to do BSE. WUS is women of childbearing age aged 15-49 years who already have perfect breast tissue; hormonal changes that occur are very sensitive to neoplastic growths that are cancerous or malignant (2,3).

Several strategies have been campaigned to increase the effectiveness of BSE, starting from counseling and even displaying billboards regarding the importance of BSE examinations. Still, the implementation is only carried out at certain events and groups. It requires persuasive communication media that can always disseminate BSE, one of which is social media. Some of the social media used in Indonesia, namely Facebook, Twitter, yahoo messager, path, Instagram, Skype, and WhatsApp. Instagram is the most widely used social media for teenagers. The development of Instagram is very fast, shows that Instagram has a strong appeal to share information resources with all people (4). Through Instagram, respondents hear the material conveyed and see it directly and clearly (5) .

Another social media is WhatsApp. WhatsApp is an application for direct messaging and can send pictures, videos, photos, and voice messages. WhatsApp can also make group chats to communicate with many people at once and share information and discuss. One provision of material can be made through the WhatsApp group by uploading the material into the group by utilizing the internet network. In the group, it will be automatically known if someone sends a certain message, and all members in the group can see and respond to the topic clearly (6). Ayulia Fardila Sari (7), the results of her research, found an increase in the perception of the usefulness of student technology after the health promotion of breast self-examination, including the ease of getting information about BSE on Whatsapp and Instagram (7).

Based on the description above, it's important to provide knowledge or information about BSE to lead self-efficacy that supports women of childbearing age to practice BSE. Instagram and Whatsapp can be used as persuasive media.

MATERIALS AND METHODS

Design
This type of research is a quantitative study with randomize controlled trial with control group and an intervention group.

Population and Sample
The target population of this research is Women of Childbearing Age (WUS) working area of Sukawarna Health Center in the age range of 15-49 years. Sample measurements were calculated using G-Power software version 3.1.9.7 with F-test, ANCOVA: Fixed effect, main effect and interactions assuming two tails, = 0.05, effect size = 0.4 (Cohen, 1998), power level = 0.8, the minimum estimated sample is 52 people. However, to avoid sample errors, plus an attrition rate of 10%, which is eight respondents, the total minimum sample size is 60. In this study, there were two groups, so the estimated sample for each group was 30 respondents. The sampling technique is convenience sampling, with the inclusion criteria: Willing to be a respondent, actively using Instagram and WhatsApp, willing to follow (follow) an Instagram account created specifically for the research. Exclusion criteria: menopausal women.

Ethical Considerations
This research has been declared ethically feasible because the indicators in each standard have been met. The ethical test was conducted at the PPNI West Java College of Nursing (STIKep) with No. III/003/KEPK-SLE/STIKEP/PPNI/JABAR/VI/2021.

Instruments and Modules
Instrument
The research instrument measured knowledge, self-efficacy, and BSE behavior in women of childbearing age.
- Knowledge

The questionnaire was adapted from Sanny Sugiharto's (8) research titled The Relationship Between Breast Cancer Knowledge and Conscious Behavior, which contains 14 question items. Each question item consists of two choices, namely True and False, with a validity value of 0.616 and reliability of 0.598.

- Self Efficacy

The self-efficacy questionnaire was adapted from Wulan's research (2020) with the title "The Relationship of Self-Efficacy with Breast Self-Examination Behavior (BSE) in PPNI West Java STIKep Students, adapted from the Champion's Health Belief Model Scale (CHBMS). In this questionnaire, there are 16 items. Each question item consists of four answer options such as 1 "strongly disagree", 2 "disagree", 3 "agree", 4 "strongly agree". With the lowest score of 16 and the highest score of 64, the validity value is 0.917, and the reliability is 0.820 with r_table 0.355.

- BSE Behavior/Practice

The self-examination behavior questionnaire was adapted from Sanny Sugiharto (8) with the research title The Relationship Between Breast Cancer Knowledge and Conscious Behavior. In the questionnaire, there are 25 statements; respondents are only asked to choose one answer according to their level of behavior. The validity value of this questionnaire is r = 0.648 to 0.776, and the reliability is 0.694.

Modules
Module

Breast cancer modules and posters were developed from the Direktorat Pencegahan dan Pengendalian Penyakit tidak Menular (P2PTM) Kementrian Kesehatan Republik Indonesia regarding guidelines and management of breast cancer and techniques for controlling breast and cervical cancer. The contents of the module are (Table I)

Tabel I : Contents of Breast Cancer Education Module

Chapter	Material
Chapter 1	Breast Health Awareness • Knowledge about breast cancer • Breast self-examination (BSE)
Bab 2	Normal Breast • Breast Anatomy • Breast Physiologi
Bab 3	Breast Cancer • Symptoms of breast cancer • Breast cancer risk factors • Breast cancer treatment
Bab 4	Other Screening Methods • Clinical breast examination (SADANIS) • Mammography
Glossary Reference	

Intervention and Control Group

Education is done by posting posters on Instagram stories that contain everything you need to know about breast cancer, where the material is by the module made.

Intervention Group

The intervention group received treatment for two weeks. This group was given the first education about breast cancer knowledge according to the module through zoom media on the first day. On the second day and until the 13th day, education is carried out through Instagram stories and questions and answers with respondents. The 14th day was the last day of treatment, so that the evaluation was carried out again through zoom media.

Control Group

The control group did not get treatment, and only at the end of the data collection process, this group was given an education module about breast cancer.

Data analysis
Univariate Analysis

Univariate analysis to know frequency distribution for describe the demographics (age, education level, occupation, marital status, and family history of illness) and the knowledge of women of childbearing age before and after the information education intervention. Univariate analysis was carried out using mean, median, mode, standard deviation, lowest value, and highest value.

Bivariate Analysis

Bivariate analysis to know the effectiveness of social media education on breast cancer knowledge in women of childbearing age. Bivariate analysis is carried out by determining the characteristics of the variables studied; after knowing the features of each variable, the research used is determined to perform statistical tests with tables. Before the bivariate analysis was carried out, the normality test of the data was first tested using the Kolmogorov-Smirnov method. If normally distributed, the information was statistically tested using a paired sample hypothesis test (Paired sample t-test) pre and post-knowledge obtained p-value < 0.05.

Bivariate analysis was carried out to know the difference before and after an information education intervention based on social media on breast cancer knowledge, self-efficacy, and BSE behavior in women of childbearing age (WUS) from the intervention group and the intervention control group. The test that will be used is a statistical test. ANCOVA to see the difference in the overall score of the pretest and posttest scores and to see the effect of treatment using the IBM SPSS version 21 software application.

RESULTS

Univariate Analysis

Characteristics of Respondents

Table II : Frequency Distribution and Test of Homogeneity of Respondents Characteristics In Control Group and Intervention Group

Characteristic Respondents	Total n=60 (%)	Intervention Group n=30 (%)	Control Group n=30 (%)	p-value
Age (Mean ± SD)	24,65± 6,58	24 ± 6,34	25,30 ± 6,85	0,192
Status				
Belum Menikah	30 (50)	18 (60)	12 (40)	0,196
Menikah	30 (50)	12 (40)	18 (60)	
Education				
SD	1 (1,7)	1 (3,3)	0 (0,0)	0,000
SMP	5 (8,3)	3 (10)	2 (6,7)	
SMA	39 (65)	16 (53,3)	23 (76,7)	
Perguruan Tinggi	15 (25)	10 (33,3)	5 (16,7)	
Job				0,000
Not Yet Employed	3 (5)	2 (6,7)	1 (3,3)	
Teacher	4 (6,7)	2 (6,7)	2 (6,7)	
Housewife	28 (46,7)	11 (36,7)	17 (56,7)	
Private Employe	4 (6,7)	3 (10)	1 (3,3)	
Student	19 (31,7)	10 (33,3)	9 (30)	
Enterpreneur	2 (3,3)	2 (6,7)	0	
Family History with Cancer				0,492
None	58 (96,7)	30 (100)	28 (93,3)	
There are	2 (3,3)	0 (0,0)	2 (6,7)	
Family History with breast cancer				0,706
None	52 (86,7)	27 (90)	25 (83,3)	
There are	8 (13,3)	3 (10)	5 (16,7)	

Based on Table II, the average age of the respondents was 24.65 (SD=6.58). Most of the respondents' education level was in the control group, and the intervention group was at the high school level (76.7%). The marital status of all respondents in the control group is mainly married (60%), and the intervention group is unmarried (60%), with the most occupations in the control and intervention groups being housewives (56.7% and 36.7%). The family history of all respondents in the control and intervention groups had no history of cancer (100% and 93.3%). Meanwhile, the closest person with breast cancer in the control and intervention groups had no history (83.3% and 90%). The bivariate analysis results with independent t-test and chi-square showed no significant difference between the intervention and control groups in terms of age, status, family history of cancer, and history of closest relatives who have

breast cancer. And there are significant differences in terms of final education and employment.

Bivariate Analysis
Table III shows that the score of breast cancer knowledge, self-efficacy, and BSE behavior in the intervention group before and after the intervention showed a significant difference with the p-value ($p < 0.05$).

Table III : Differences in knowledge, self-efficacy, and behavior scores in the control and intervention groups before and after the intervention

	Knowledge		*Self Efficacy*		Behavior	
	Intervention Group	**Control Group**	**Intervention Group**	**Control Group**	**Intervention Group**	**Control Group**
Total (N=60)						
Pretest	16.97±1.45	16.73±2.39	45.17±4.72	42.30±5.54	70.53±6.36	75.37±5.52
Postest	26.30±1.84	16.73±1.81	50.07±7.00	45.20±6.562	80.67±6.35	75.20±6.15
p value	0,000	0,824	0,000	0,063	0,000	0,885

Table IV, using the ANCOVA statistical test, found that the effect of breast cancer knowledge, self-efficacy, and BSE behavior after the intervention was ($p < 0.05$).

DISCUSSION

Knowledge of Breast Cancer in Women of Childbearing Age
This study indicates a significant difference in knowledge of breast cancer in women of childbearing age (WUS) before and after being given an information education intervention based on social media in the intervention group.

Photos or videos mainly show the submission of information through Instagram social media. Pictures or pictures have many advantages compared to words, including being more concrete. They offer a more realistic subject matter, and images can overcome the limitations of space and time. They can clarify a problem (7). Knowledge can come through the five senses. According to research by sensory experts, the one that transmits the most command into the brain is the "eyes." Approximately 75% to 87% of human knowledge is obtained or channeled through the eyes (6). The process of socializing reproductive health about breasts with social media Instagram is socialization with visual aids in health promotion education. Instagram is one alternative to facilitate the delivery and receipt of information or educational materials for adolescents to optimize abilities, reasoning, and skills in improving adolescents' knowledge about BSE as early breast cancer prevention. Teenagers aged between 12-24 years are teenagers of the internet generation. Teenagers of this generation like and often communicate with social networks including Facebook, Twitter,

Table IV : The effect of social media on knowledge, self-efficacy, and BSE behavior in women of childbearing age

	Knowledge	*Self Efficacy*	Behavior
Total (N=60)			
Type III Sum of Squares	510,93	236,74	709,131
df	1	1	1
Mean Square	510,933	236,74	703,191
F	699,731	5,254	20,977
Sig	0,000	0,026	0,000

Line, WhatsApp, Instagram, telegram, and others.

Thus the intervention regarding information education based on social media is effective in increasing knowledge of breast cancer. Sources of information can influence advancing knowledge, and one of the ways to provide information is by giving information education.

The results of this study are by research conducted by Ayulia Fardila Sari (7). There are differences in knowledge, attitudes, and perceptions of the usefulness of technology about BSE on non-health students at Andalas University before and after health promotion using Instagram social media. Instagram can be used as a medium for health promotion to increase public knowledge and attitudes to find out health information, especially early detection of breast cancer through breast self-examination. Knowledge is an essential domain for forming one's actions (9).

Instagram social media, in increasing knowledge, is effective because it can be read wherever and whenever they are. In addition, the presentation of health information through Instagram, which is dominated by images or photos, also makes it easier for respondents to receive health information. This study is by research conducted by Indah Risnawati (10) with the conclusion that there is a relationship between the level of knowledge about BSE and the practice of BSE in adolescent girls. Another study conducted by Rita Permatasari (11) on health promotion through Instagram social media resulted in increased knowledge after being given Instagram social media intervention. Irawan (12) reveals that the role of social media contributes positively to health promotion efforts. The use of social media is effective in carrying out health promotion efforts to increase understanding and provide support to the community for healthy behavior (12).

Self Efficacy of BSE Implementation in Women of Childbearing Age
The analysis results showed that there were differences in the self-efficacy scores of the intervention group before and after the intervention. The activity influences the increase in self-efficacy in the control group after getting the pre-test. Respondents who were curious about BSE found out through the internet. In contrast, others had received counseling related to early detection of breast cancer by indirectly being given a stimulus to increase knowledge, trust, and ability to carry out independent breast examinations. In the intervention group, in addition to searching for information through the internet, they received previous counseling, respondents were given additional knowledge through educational videos by the researcher.

Self-efficacy is the basis of human motivation, achievement, and emotional well-being. Self-efficacy theory is based on a person's expectations regarding a particular course of action. According to Banudra (13), there are four processes for forming self-efficacy, namely cognitive processes, motivational processes, affective processes, and selection processes, that take place throughout life. Cognitive processes will affect how the mindset will encourage or inhibit individual behavior. Individuals with high self-efficacy will behave as expected and commit to maintaining that behavior (14). According to Bandura, several factors influence individual self-efficacy, including mastering something, social modeling, verbal persuasion, and physical and emotional conditions (2).

Behavior/Practice of BSE in Women of Childbearing Age
There is an influence on BSE behavior before and after the intervention. BSE education is a method that is recommended in developing countries because it is easy, comfortable, done by oneself without the help of others, safe. It does not require special equipment (2).

After being given information through BSE health education through a WhatsApp group, the respondent will have a greater chance of complying or knowing how to detect breast cancer early. The purpose of health education namely to help improves optimal health degree, Lusiana (15) which states that health education is an activity based on the principles of teaching or practicing, providing information or advice aimed at individuals, families, groups, or communities regarding healthy living. Health education includes health education and spreads messages, instills confidence so that people are not only aware, know, and understand but are also willing and able to make recommendations for healthy living.

The results of this study are supported by research Birhane (16), showing that the Practice of Breast Self-Examination is essential to understand the skills to perform breast examinations to detect breast abnormalities early.

Notoatmodjo (9) states that health education can influence and or invite other people, individuals, groups, and communities, to carry out health behavior. Operationally, it is an activity to provide the community's knowledge, attitudes, and practices in maintaining and improving their health.

The results of this study same as (17) there is an influence on the behavior and motivation of BSE practice. Doing Consciousness regularly at least

once a month and taught to women starting from 20 years. BSE is done three days after menstruation or 7-10 days because there is the influence of ovarian hormones that have disappeared so that the consistency of the breasts is no longer hard at the time of menstruation (18). Awareness aims to detect cancer from the age of 15 years or early so that if it occurs, it can be treated as soon as possible and to reduce the mortality rate of women worldwide (19).

CONCLUSION

There is an influence of social media on breast cancer knowledge of women of childbearing age with a p-value = 0.00 (p < 0.05). There is an influence of social media on self-efficacy of BSE implementation for women of childbearing age with a p-value = 0.026 (p < 0.05). There is an influence of social media on the BSE behavior/practice of women of childbearing age with a p-value = 0.000 (p < 0.05).

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