

## EDUCATION AND SOCIALIZATION OF THE '*LOVE YOUR BREAST*' MOBILE APPLICATION: A STRATEGY FOR EARLY DETECTION OF BREAST CANCER IN YOUNG WOMEN

Dian Anggraini<sup>1</sup>, Nurzalillah Listiana<sup>2</sup>

<sup>1</sup> Lecturer at Department of Medical Surgical Nursing, Sekolah Tinggi Ilmu Keperawatan PPNI Jawa Barat, Indonesia

<sup>2</sup> Student at Sekolah Tinggi Ilmu Keperawatan PPNI Jawa Barat, Indonesia

e-mail: [dians\\_23@yahoo.com](mailto:dians_23@yahoo.com)

### Abstrak

Kanker payudara merupakan salah satu penyebab kematian tertinggi pada wanita. Upaya yang dapat dilakukan untuk mendeteksi adanya tanda kanker payudara yaitu dengan cara melakukan SADARI. Pemeriksaan payudara sendiri (SADARI) merupakan salah satu cara untuk mendeteksi adanya kanker payudara. Pengetahuan perempuan mengenai deteksi dini kanker payudara berpengaruh signifikan dan positif terhadap keyakinan mengenai kesehatan. Kurangnya kepekaan, keingintahuan serta keaktifan dari remaja putri untuk mencari informasi mengenai SADARI yang menyebabkan kurangnya pengetahuan tentang deteksi dini kanker payudara. Dengan adanya sosialisasi mobile aplikasi "*LOVE YOUR BREAST*" sangat membantu wanita untuk memudahkan mereka mendapatkan informasi dan mengingatkan mereka tentang waktu yang tepat untuk SADARI. Hal ini dapat memberikan dampak positif pada pengetahuan tentang kanker payudara. Kegiatan ini bertujuan untuk melakukan edukasi dan sosialisasi mobile aplikasi *Love Your Breast* sebagai upaya deteksi dini kanker payudara pada remaja putri. Metode pelaksanaan yang digunakan terbagi menjadi tiga tahap, yaitu: persiapan, pelaksanaan, serta monitoring dan evaluasi. Hasil yang didapatkan adalah menunjukkan peningkatan pengetahuan sebelum dan setelah diberikan edukasi .

**Kata kunci:** *edukasi, mobile\_aplikasi, pengetahuan, remaja\_putri*

### Abstract

*Breast cancer is one of the primary causes of mortality in women. A technique for identifying early indicators of breast cancer is Breast Self-Examination (BSE). BSE is a readily available and efficient method for early detection. The awareness of women regarding early breast cancer screening profoundly influences their health views and attitudes. The absence of sensitivity, curiosity, and proactivity among young women in pursuing information on BSE has resulted in insufficient understanding of early detection methods. The socialization of mobile applications can significantly aid by offering accessible information on BSE and reminders for the ideal occasions to perform self-examinations. This method can enhance understanding and awareness of breast cancer. This program aims to inform and advocate for the "Love Your Breast" mobile application as a resource for early breast cancer diagnosis in young women. The implementation has three phases: preparation, execution, and monitoring and assessment. The findings reveal a substantial enhancement in knowledge of breast cancer in women.*

**Keywords:** *education, mobile application, knowledge, teenager,*

## INTRODUCTION

Breast cancer, or mammary carcinoma, is a malignancy that can affect individuals of any gender, including both women and men. This breast cancer develops in the mammary glands, adipose tissue, and connective tissue of the breast. Breast cancer has been recognized as a lethal malignancy. The risk of malignancy and cancer in the breast is equivalent. Nevertheless, the incidence of breast cancer patients is approximately 90% higher than that of those with breast malignancy (Heryani et al., 2020).

The precise etiology of breast cancer remains unidentified; however, the risk factors include age over 50 years, a familial history of breast cancer, obesity, smoking, alcohol intake, prolonged use of hormonal contraceptives, radiation exposure, nulliparity or first childbirth after the age of 35, lack of breastfeeding, late menopause (after 50 years), and early menarche (before 12 years). Among these risk factors, familial history and age are the most significant determinants. A familial predisposition to breast cancer elevates the likelihood of developing the condition. According to WHO data, 78% of breast cancer cases occur in women aged 50 and older. Simultaneously, 6% are under 40 years of age. Nonetheless, numerous women in their 30s are also impacted by this lethal malignancy (Azmi et al., 2020).

According to The Global Cancer Observatory, there were 7.790.717 breast cancer diagnoses globally in the past five years (WHO, 2020). Breast cancer is a form of malignancy that frequently manifests in women in Indonesia. Breast cancer accounts for 30% and is the most prevalent type of cancer in Indonesia, surpassing cervical cancer, which constitutes 24%. The 2019 Riskesdas data indicates that the prevalence of breast cancer in Indonesia is 42.1 per 100,000 individuals, with an average mortality rate of 17 per 100,000 individuals. The incidence of tumors/cancer in Indonesia rose from 1.4 per 1,000 population in 2013 to 1.79 per 1,000 population in 2018 (Eismann et al., 2019). In West Java province, the most populous region in Indonesia, with a population of 40.737.594 individuals, where females constitute 49.5%, the incidence rate of tumors/cancers is 0.5%. The projected incidence is 26 per 100,000 women, equating to approximately 5,200 cases. The prevalence of breast cancer is affected by rising life expectancy, unhealthy lifestyles, and environmental factors (Aeni & Yuhandini, 2018).

A significant number of individuals diagnosed with breast cancer are relatively young, including those as young as fourteen years old. If not identified promptly, it will transform into cancerous cells (Ashariati, 2019). We must enhance preventive and promotional initiatives by engaging youth through educational and health education efforts, which are both safe and easily implementable (Anthis & Kavanaugh-Lynch, 2020). Adolescence is a transitional phase from childhood to adulthood, encompassing the age range of 12 to 21 years (Saputra et al., 2021).

Breast Self-Examination (BSE) is a procedure performed by women to see and manually assess their breasts for the presence of lumps (Hastuti, 2020). Early detection is a way to avoid breast cancer, specifically through clinical breast examination (CBE) and breast self-examination (BSE), which women can readily perform to identify any lumps indicative of breast cancer (Rahmadini et al., 2022). Breast self-examination (BSE) is a straightforward procedure; nonetheless, some women, particularly adolescents, remain unaware of this technique. Additionally, many teenagers neglect to recognize abnormal breast signals due to insufficient information and motivation regarding BSE. The discomfort associated with the prevention and early diagnosis of breast cancer results in a limited proportion of women not adhering to a regular schedule for breast self-examinations (Lestari

& Wulansari, 2018). BSE represents a woman's awareness over the health of her breasts. This promotion includes specialized breast cancer screening procedures to detect alterations in the breast. The objective of BSE is to ascertain if ladies are afflicted with breast cancer (Mardiana & Kurniasari, 2021).

A contributing cause to the elevated incidence rate is the deficiency of breast cancer education from adolescence regarding early detection and treatment. The elevated mortality rate from cancer is also attributable to people presenting to healthcare facilities at an advanced stage of the disease. In cases where the patient is in an advanced stage of cancer, the healing process will be challenging to implement. The deficiency of public awareness regarding cancer and its detection contributes to elevated breast cancer mortality rates (Heryani et al., 2020).

Knowledge is defined as all that is understood via experience (Darsini et al., 2019). Currently, nearly all adolescents utilize electronic devices daily. They typically utilize devices to engage in gaming, listen to music, or see vlogs on YouTube. Additionally, with devices, adolescents can utilize the internet to find for journals, information, or communicate with peers (Yanti et al., 2021). Consequently, one reason ladies neglect to perform breast self-examinations is the significant amount of time they dedicate to utilizing smartphones. A smartphone application will effectively assist women in remembering the appropriate time for breast self-examination (BSE). This may positively influence knowledge and self-efficacy regarding breast cancer (Shakery et al., 2021).

Previous research in the Rejosari Pekanbaru community health center area indicated that the respondents' lack of understanding about BSE contributed to their failure to perform it. This may be attributed to various things, including information, experience, abilities, expertise, or encouragement from others. Respondents cited three reasons for not performing BSE: the absence of breast issues, unfamiliarity with the BSE procedure, and lack of awareness on the significance of BSE (Sihite, E. D. O., Nurchayati, S., & Hasneli, 2019). According to the background description, it is essential to offer an elucidation to enhance understanding of the BSE Socialization Mobile Application. Embrace Breast Awareness as a Strategy for Early Detection of Breast Cancer in Young Women.

## METHODS

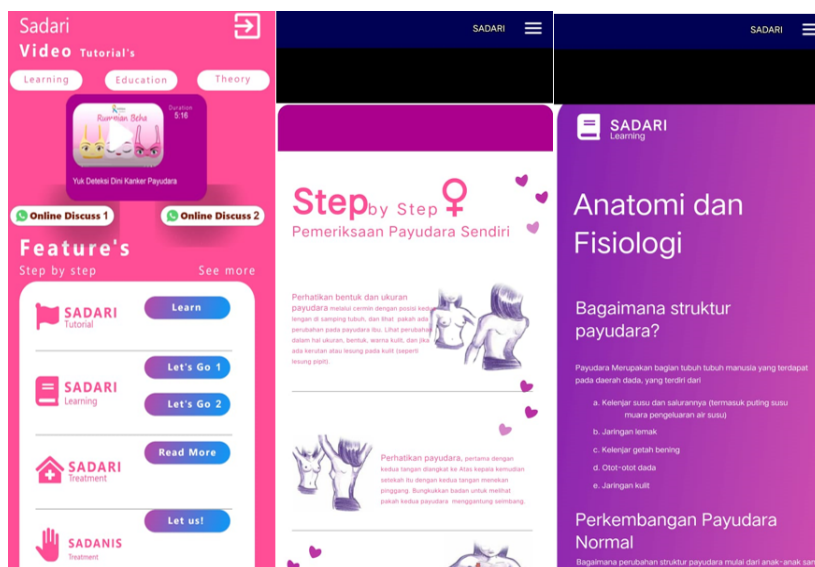
This community service was conducted for young women in the Pangalengan region, specifically targeting those dwelling in that area. A total of 55 people engaged in the program, which comprised three phases: preparation, implementation, and monitoring and evaluation. During the preparation phase, the team formulated a strategy for the outreach and promotion of the "Love Your Breast" application. The structured outreach plan aimed to enhance the organization and focus of the efforts. This phase encompassed the development of instructional modules, the scheduling of activities, the preparation of requisite tools and materials, the organization of facilities, and the coordination of invites and participation. During the implementation phase, in-person teaching workshops and promotions for the "Love Your Breast" mobile application were done to facilitate early breast cancer identification in young women. The content was delivered via lectures and conversations, encompassing two primary subjects: a review of breast cancer and techniques for performing Breast Self-Examinations (BSE), followed by an introduction to the "Love Your Breast" mobile application.

## FINDING AND DISCUSSION FINDING

Participants will be introduced to the Love Your Breast (LOB) application, followed by a simulation of the registration process and an exploration of the application's features, including a self-examination guide and an instructional video on conducting an examination. All operations operating within the system are assured to emphasize the confidentiality of user data, enabling users to discuss their symptoms with confidence. Participants are consistently accompanied by a community service team during training and educational events on application usage (Figure 1).



Figure 1 Delivery of Breast Cancer Material and Socialization of BSE



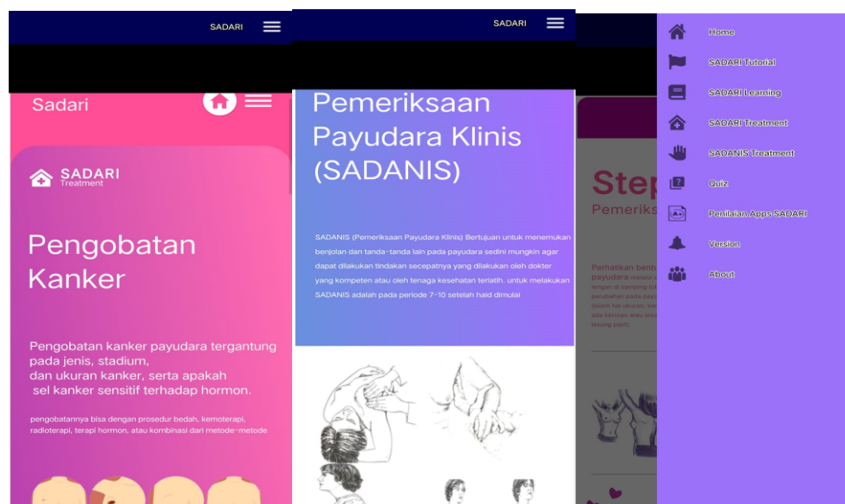


Figure 2 Mobile Application Love Your Breast

Table 1. Knowledge before and after the program is implemented

	<b>Before Mean (SD)</b>	<b>After Mean (SD)</b>	<b>P-Value</b>
Knowledge	60,85 (8,026)	89,69(15,597)	0,000

Table 1 showed a statistical comparison of participants' average knowledge scores prior to and during the educational intervention. The findings demonstrate a substantial difference, with a p-value below 0.05, indicating that the educational intervention successfully enhanced the participants' knowledge. This indicates that the alteration in knowledge was improbable to have happened randomly and demonstrates the beneficial effect of the intervention on the participants' comprehension of the subject, specifically breast self-examination (BSE) and early breast cancer diagnosis.

## DISCUSSION

The average knowledge level score of young women differs significantly before and after receiving schooling (p-value < 0.05). This aligns with research by Lubis (2017), which indicated that BSE awareness influenced BSE behavior following an intervention. The adequate level of knowledge among adolescents may be attributed to various reasons, including their environment and insufficient information provided by health professionals and internet media. Consequently, young women should be educated about breast self-examination (BSE) as an efficient technique for early tumor detection.

Knowledge arises from curiosity facilitated by sensory experiences, particularly through the visual and auditory modalities directed at specific objects. Knowledge can be defined as the entirety of what is understood through human experience, which expands in accordance with the accumulation of experiences. Human knowledge is derived from the pursuit of truth and the resolution of challenges encountered. This activity is conducted by individuals according to their own inclinations (Mardianti, 2021). Knowledge arises from curiosity facilitated by sensory experiences, particularly through the visual and auditory modalities directed at specific objects. Knowledge can be defined as the entirety of what is understood through human experience, which expands in accordance with the accumulation of experiences. Human knowledge is derived from the pursuit of truth and the resolution of

challenges encountered. This activity is conducted by individuals according to their own inclinations (Mardianti, 2021).

Health promotion media via Android applications can be utilized for adolescents as a preliminary method of imparting knowledge, attitudes, and self-efficacy regarding healthy lifestyles during early adolescence. To ensure that comprehensive information positively impacts teens' attitudes and self-efficacy. Applications co-developed with targets can fulfill user requirements, enabling the resultant items to be directly utilized by adolescents. Furthermore, adolescents constitute the predominant demographic of Android application users due to their eagerness to acquire new knowledge. The program, equipped with comprehensive content and features including articles, photographs, quizzes, videos, and tracker updates, can engage and captivate youngsters, encouraging them to include the media application into their daily routines. Consequently, comprehension, readiness, and affirmative teenage self-efficacy constitute an endeavor to adopt a healthy lifestyle for adolescents (Novianto et al., 2019).

The dissemination of the Love Your Breast (LOB) application to enhance awareness is deemed essential, with the expectation that it will elevate young women's literacy on early breast cancer detection. This aligns with studies (Alam et al., 2021) indicating that the utilization of an early breast tumor detection application enhances awareness and modifies the behavior of women of reproductive age about breast self-examination (BSE). Mobile applications possess significant efficacy in deciphering instructional information. Conveying information solely through words is largely ineffective; however, media can enhance its efficacy by collaborating with supplementary teaching aids, as this approach facilitates greater accessibility and comprehension of health messages for participants in health promotion activities. The utilization of many human senses enhances comprehension and significantly influences an individual's memory capacity. Ferdiani & Azam (2016) demonstrated that disseminating breast cancer information and promoting early detection through breast self-examination (BSE) via media significantly enhanced knowledge, with an average score of 47.37% prior to the intervention and an increase to 77.77% post-intervention through social media. The incorporation of information through smartphone media significantly impacts knowledge acquisition, as it can be readily accessed by responders. The benefits of using cellphones over other media encompass their portability, user-friendliness, accessibility at any time, enhanced efficiency for healthcare professionals in performing their responsibilities, and their capacity to engage all five senses more compellingly.

## CONCLUSION

The results indicate that educational interventions markedly enhance young women's understanding of breast self-examination (BSE), as reflected by the rise in average knowledge scores ( $p$ -value  $< 0.05$ ). This corresponds with prior research demonstrating that awareness of BSE positively affects health behavior when reinforced by focused education. Elements such as the environment, constrained healthcare resources, and accessible media, including mobile applications, influence the development of teenagers' health literacy. Considering adolescents' heightened receptivity to digital tools, the "Love Your Breast" (LOB) mobile application serves as an ideal platform to enhance awareness and improve breast self-examination behaviors. The incorporation of mobile applications in health education may significantly empower young women to embrace preventative health practices, promoting enduring good behaviors. ( $p$  – value  $< 0,05$ ).

## REFERENCE

- Aeni, N., & Yuhandini, D. S. (2018). Pengaruh Pendidikan Kesehatan Dengan Media Video dan Metode Demonstrasi Terhadap Pengetahuan SADARI. *Care : Jurnal Ilmiah Ilmu Kesehatan*, 6(2), 162. <https://doi.org/10.33366/cr.v6i2.929>
- Alam, N., Soepardan, S., & Wirakusumah, F. F. (2021). *Pengetahuan dan Perilaku Sadari Berbasis Aplikasi Untuk Deteksi Dini Tumor Payudara pada Wanita Usia Subur*. 13(1), 95–103.
- Anthis, N. J., & Kavanaugh-Lynch, M. H. E. (2020). The global challenge to prevent breast cancer: Surfacing new ideas to accelerate prevention research. *International Journal of Environmental Research and Public Health*, 17(4). <https://doi.org/10.3390/ijerph17041394>
- Ashariati, A. (2019). Manajemen Kanker Payudara Komprehensif. *Journal of Chemical Information and Modeling*, 53(9), 1689–1699. [http://repository.unair.ac.id/96210/2/Manajemen Kanker Payudara Komprehensif.pdf](http://repository.unair.ac.id/96210/2/Manajemen%20Kanker%20Payudara%20Komprehensif.pdf)
- Azmi, A. N., Kurniawan, B., Siswandi, A., & Detty, A. U. (2020). Hubungan Faktor Keturunan Dengan Kanker Payudara DI RSUD Abdoel Moeloek. *Jurnal Ilmiah Kesehatan Sandi Husada*, 12(2), 702–707. <https://doi.org/10.35816/jiskh.v12i2.373>
- Darsini, D., Fahrurrozi, F., & Cahyono, E. A. (2019). Pengetahuan; Artikel Review. *Jurnal Keperawatan*, 12(1), 13.
- Eismann, J., Heng, Y. J., Fleischmann-Rose, K., Tobias, A. M., Phillips, J., Wulf, G. M., & Kansal, K. J. (2019). Interdisciplinary Management of Transgender Individuals at Risk for Breast Cancer: Case Reports and Review of the Literature. *Clinical Breast Cancer*, 19(1), e12–e19. <https://doi.org/10.1016/j.clbc.2018.11.007>
- Ferdiani, D. A., & Azam, M. (2016). *Media Sosial Facebook Sebagai Sarana Pemberian Materi Kanker Payudara*. 1(2).
- Hastuti, P. (2020). Pengaruh Penyuluhan Tentang Sadari Terhadap Peningkatan Pengetahuan Pada Ibu-Ibu Kader Kesehatan Di Dusun Bangmalang Pendowoharjo Sewon Bantul. *Jurnal Kebidanan Khatulistiwa*, 6(2), 56. <https://doi.org/10.30602/jkk.v6i2.559>
- Heryani, H., Kusumawaty, J., Gunawan, A., & Samrotul, D. (2020). Efektivitas Leaflet terhadap Peningkatan Keterampilan tentang Pemeriksaan Payudara Sendiri (SADARI) pada Remaja Putri di Pondok Pesantren Ar-Risalah Kabupaten Ciamis. *Jurnal Ilmu Dan Teknologi Kesehatan*, 11(1), 21–25. <https://doi.org/10.33666/jitk.v11i1.237>
- Lestari, P., & Wulansari. (2018). Pentingnya Pemeriksaan Payudara Sendiri (SADARI) Sebagai Upaya Deteksi Dini Kanker Payudara. *Indonesian Journal of Community Empowerment (IJCE)*, 1161, 55–58.

<http://jurnal.unw.ac.id:1254/index.php/IJCE/article/view/327>

- Lubis, U. L. (2017a). Pengetahuan Remaja Puteri Tentang Pemeriksaan Payudara Sendiri (SADARI) dengan Perilaku SADARI. *Jurnal Ilmu Kesehatan*, 2(1), 81–86.
- Lubis, U. L. (2017b). *Pengetahuan Remaja Putri Tentang Pemeriksaan Payudara Sendiri (Sadari ) Dengan Perilaku Sadari*.
- Mardiana, A., & Kurniasari, L. (2021). Hubungan Pengetahuan Pemeriksaan Payudara Sendiri ( SADARI ) dengan Kejadian Kanker Payudara di Kalimantan Timur. *Borneo Student Research*, 2(2), 1052–1059.
- Marfianti, E. (2021). Peningkatan Pengetahuan Kanker Payudara dan Ketrampilan Periksa Payudara Sendiri (SADARI) untuk Deteksi Dini Kanker Payudara di Semutan Jatimulyo Dlingo. *Jurnal Abdimas Madani Dan Lestari (JAMALI)*, 3(1), 25–31. <https://doi.org/10.20885/jamali.vol3.iss1.art4>
- Novianto, D. R., Suryoputro, A., & Widjanarko, B. (2019). *Pengaruh aplikasi “ Remaja Cerdik Mobile ” terhadap pengetahuan , sikap , dan efikasi diri remaja tentang pencegahan prediabetes*. 35(8), 275–282.
- Rahmadini, A. F., D.S, R. K., & Agustiani, T. (2022). Edukasi Perilaku Pemeriksaan Payudara Sendiri (Sadari) Dalam Pencegahan Kanker Payudara Pada Remaja. *Jurnal Pemberdayaan Dan Pendidikan Kesehatan (JPPK)*, 1(02), 105–113. <https://doi.org/10.34305/jppk.v1i02.433>
- Saputra, Y. A., Kurnia, A. D., & Aini, N. (2021). Pengaruh Pendidikan Kesehatan terhadap Upaya Remaja untuk Menurunkan Nyeri Saat Menstruasi (Dismenore Primer). *Jurnal Kesehatan Reproduksi*, 7(3), 177. <https://doi.org/10.22146/jkr.55433>
- Shakery, M., Mehrabi, M., & Khademian, Z. (2021). The effect of a smartphone application on women’s performance and health beliefs about breast self-examination: a quasi-experimental study. *BMC Medical Informatics and Decision Making*, 21(1), 1–10. <https://doi.org/10.1186/s12911-021-01609-4>
- Sihite, E. D. O., Nurchayati, S., & Hasneli, Y. (2019). (2019). Gambaran Tingkat Pengetahuan Tentang Kanker Payudara dan Perilaku Periksa Payudara Sendiri (SADARI). *Jurnal Ners Indonesia*, 10(1).
- Sinaga, C. F., & Ardayani, T. (2016). Hubungan Pengetahuan Dan Sikap Remaja Putri Tentang Deteksi Dini Kanker Payudara Melalui Periksa Payudara Sendiri Di Sma Pasundan 8 Bandung Tahun 2016. *Kartika Jurnal Ilmiah Farmasi*, 4(1), 16–19. <https://doi.org/10.26874/kjif.v4i1.52>
- Yanti, N. D., Mardison, L., Dewi, R., & Yenni, Y. (2021). Hubungan Penggunaan Gadget Terhadap Perubahan Perilaku Pada Remaja. *REAL in Nursing Journal*, 4(3), 207. <https://doi.org/10.32883/rnj.v4i3.1349>