

Breast Cancer Prevention Education Through Community Empowerment and TPS (Transactional, Precise, and Skilled) Communication Model in Bontang City

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Abstract The prevalence of breast cancer in Indonesia is still increasing. Data from the Global Cancer Observatory shows that the most common cancer case in Indonesia is breast cancer. Meanwhile, the incidence of breast and cervical cancer in Bontang City reaches 30% of the overall cancer data in Bontang (Akurasi.id, 2024). Therefore, there is a need for a health promotion campaign and breast cancer prevention using simple communication methods. This program aimed to provide education to health cadres (PKK) in three sub-districts of Bontang, targeting 100 participants. Five sub-districts were selected from each of the three sub-districts, with seven participants sampled from 10 sub-districts and six participants sampled from five sub-districts. Participants were selected using purposive sampling. The program employed a participatory research approach based on community empowerment, using the TPS (Transactional, Precise, and Skilled) communication model. The program was conducted in three stages. In the first stage, theoretical information related to breast cancer and its prevention was provided, along with 100 questions and answers shared online beforehand. The second stage involved practicing breast self-examination (SADARI). The third stage combined theory and practice, incorporating educational strategies through games and evaluations. The program results showed that 83% of participants agreed that knowledge about breast cancer and its prevention was necessary. The program successfully improved the knowledge and attitudes of PKK/health cadres through an interactive, participatory approach. Although there were barriers related to participant agility, support from trained organizers proved effective in overcoming them. These findings confirm the importance of health education that emphasizes two-way communication and breast cancer prevention.

1. INTRODUCTION

The prevalence of breast cancer in Indonesia continues to increase to date (International Agency for Research on Canada). According to research by Huang et al., 2024, Breast cancer is a critical public health problem worldwide and is the most commonly diagnosed cancer in women and the leading cause of cancer deaths. The number of cancer

-related deaths worldwide reached 9.6 million in 2018 (Sofa et al., 2024), and in 2020, cancer deaths in Asia accounted for 58.3% of the total (Sung et al., 2021), which is one in six deaths and 2.09 million cases of breast cancer in 2018. As many as 70% of cancer deaths occur in developing and poor countries.

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Breast cancer cases in Indonesia are highly diverse, affecting both women and men (Ratnaningsih et al., 2022). Breast cancer has also been found in younger patients, with some teenage girls as young as fourteen years old suffering from breast tumors (Madiyahanti & Marlinda, 2024). Moreover, breast cancer patients come not only from the upper social class but also from the lower social class (Kantor et al., 2022). The 2018 data from the Global Cancer Observatory, provided by the World Health Organization (WHO), indicates that breast cancer is the most prevalent type of cancer in Indonesia, accounting for 58,256 cases, which is 16.7% of the total 348,809 cancer cases (Maresa et al., 2023). The Ministry of Health stated that the breast cancer rate in Indonesia reached 42.1 people per 100,000 population and the cancer death rate reached 17 people per 100,000 population. Recent studies have shown that in 2020 at Dharmais Cancer Hospital, there is still an increase in breast cancer patients compared to the previous year (1095 patients in 2019 to 1193 patients in 2020) and is the largest cancer population compared to other cancer populations (Andinata et al., 2021). Meanwhile, the incidence of breast and cervical cancer in Bontang City, Indonesia reaches 30% of the overall cancer data (Akurasi.id, 2024).

The data description above shows that health issues, especially breast cancer, are something that should not be ignored. However, formulating the right solution is not easy. Prevention is difficult if the chosen methods are not effective. This is confirmed by several sociology of health studies which state that medical care and services alone are not enough to improve the health status of a region or even a country (Hughes et al., 2022). Some journals show that modern medical treatment will cost a considerable amount of money (Oktastika et al., 2021; Yosmar et al., 2020), while modern non-medical treatments such as herbs, do not have strong scientific evidence regarding herbal ingredients that are truly able to overcome breast cancer (Shabrina & Iskandarsyah, 2019). Meanwhile, treatment from traditional healers has no significant guarantee regarding this, although this condition still exists as an alternative medicine.

Given the limited access and effectiveness of these treatments, a more proactive approach is needed to prevent and treat breast cancer. Thus, empowerment is important in helping breast cancer patients because this approach allows patients and communities to better understand and control their health conditions. Not only that, with empowerment patients can find their strength and potential in dealing with the disease (Schilling & Gerhardus, 2024). The focus should be on the potential within the patient, not just on the disease (Aizpurua-Perez & Perez-Tejada, 2020; Yan et al., 2019). This is to increase motivation to recover from breast cancer. However, long strategies have been formulated and implemented in the community, and breast cancer cases are still increasing. Indicating that there is a need to address and create a special formula to be able to reduce the growth rate of breast cancer in the community.

The Indonesian government has played an active role in health promotion efforts and has designed comprehensive

community empowerment to improve health. Law Number 39 of 2009 Article 18 concerning Health explains that the government is responsible for empowering and encouraging the community's active role in all forms of health efforts. This is also stated in the 2015-2019 National Medium-Term Development Plan that the Government through the Ministry of Health organized Health Promotion Health Promotion Activities in 2015-2019 (Ministry of Health Republic Indonesia, 2015). To realize this, empowerment needs to be carried out so that the community can improve and control various factors that affect health and strengthen promotive and preventive actions to improve health levels.

In the context of health promotion, empowerment can be done through health literacy and self-efficacy. Health Literacy is how the community knows about health issues and provides training so that the community understands it, and is able, and communicate it to others. The second is Self-Efficacy, which is an effort made to provide continuous health education using a variety of appropriate methods, a combination of mass communication, group communication, and interpersonal communication. Conducting training on actions needed in health with promotive efforts, preventive efforts, and curative and rehabilitative treatment aims to increase the ability and confidence to take rational actions (Priambodo et al., 2022).

Therefore, empowerment is a process that can strengthen community capabilities, bridging the communication gap between providers and target communities. This is particularly necessary given that the nature of health promotion and health education tends to be a top-down approach. Herein lies the criticism of health promotion efforts that mostly present themselves as a form of top-down approach, where health promoters have to work hard while the target group or community is often in the opposite situation, this makes top-down health promotion and disease prevention less effective (Bennykaruniawati et al., 2019). Facts show that health promotion, especially breast cancer, is still top-down. We must change our perception and use different methods if we want to reduce breast cancer rates that are still rampant today. It should be understood that the concept of prevention should be prioritized over the concept of cure because preventive measures can reduce the risk of breast cancer (Maramara et al., 2024).

To prevent breast cancer, the author uses empowerment communication which is an important aspect of development strategy, in this case, health development. When we talk about community empowerment, linear communication becomes something that can no longer be done. We need other types of communication, specifically those that can encourage active participation of the community and ultimately, help leverage existing strengths, by the concept of empowerment itself: 'helping people to help themselves'. Linear communication is being replaced by interactive communication and even transactional communication (Sulaiman et al., 2019). In other words, to study the solution to the problem of breast cancer,

communication activities related to the implementation of development using a community empowerment approach are needed. Community empowerment communication which is part of development communication, will emphasize the importance of community involvement or community participation. The community is invited to know and seek their knowledge about breast cancer and want to think about how to prevent breast cancer.

Methods must be chosen and created in such a way that the empowerment exercise is successful and effective for the chosen targets. We must use good strategies that are acceptable to the empowerment targets and in the end, they can quickly share the knowledge they have gained with the rest of the community. Health cadres are selected people who can pass on the knowledge they have been given to the surrounding community. However, it should be noted that not all PKK/health cadres are highly educated. Therefore, a separate strategy is needed to make them comfortable and quick to absorb knowledge. A transactional communication strategy is needed in carrying out communication, then precise in providing theory and skilled in carrying out practice so that the three concepts are abbreviated in the term TPS.

Therefore, this research seeks to answer the following question: Can the empowerment approach through the Transactional, Precise, and Skilled (TPS) communication model improve people's knowledge and attitudes in breast cancer prevention? Through this research, it is hoped that empowerment with the TPS communication approach can be a solution to anticipate limited access to health information, increase community participation in maintaining their health and also others, and reduce the incidence of breast cancer in Indonesia. The results of the study not only contribute to the public health literature but also offer new strategies for the implementation of health promotion programs.

2. METHOD

This community empowerment project was organized through participatory research approach. Participatory research involves research designs, methods, and frameworks that employ systematic inquiry in direct collaboration with those affected by the issue under investigation (Vaughn & Jacquez, 2020). The research was conducted in Bontang City, East Kalimantan, from September to October 2023, with a total duration of 50 hours. The sampling technique employed was purposive sampling. Bontang comprises three sub-districts: South Bontang, North Bontang, and West Bontang, each of which includes five smaller districts, totaling 15 districts overall. Seven participants were sampled from 10 districts, and six participants from five districts, with the program ultimately targeting 100 PKK/health cadres.

Several key stakeholders were involved in this program, including the SAPKANDARA Movement Community (*Sadar Pencegahan Kanker dari Awal*), an initiative focused on educating the public about cancer prevention rather than treatment after diagnosis. SAPKANDARA played

a crucial role in establishing connections and supporting the targeted PKK/health cadres. Participants were highly engaged, asking follow-up questions and demonstrating strong interest and enthusiasm for the program, which had a significant positive impact. Additionally, the program collaborated with Dompot Dhuafa East Kalimantan, which contributed by producing brochures and banners, as well as donating uniforms to encourage participants to join the program. Other notable contributors included Badak LNG, a local company that provided prizes for selected participants, and the Bontang City Government, which supported the program by supplying refreshments for all participants.

The materials and tools used during the study included educational modules, brochures, mannequins, WhatsApp groups, and evaluation questionnaires. The program was implemented in three stages. First, participants received theoretical knowledge and correct answers through online education one week prior to the trial. All cadres were grouped into a WhatsApp group, with urban village leaders overseeing their respective groups. Education was delivered via prepared modules and brochures. Second, participants attended an in-person session focused on practical breast self-examination (SADARI). Brochures were used as guides, and mannequins were provided to demonstrate the correct techniques for SADARI. Third, theoretical and practical education was combined using interactive strategy games. Three types of games—'trivia quiz,' 'word chain,' and 'shock therapy'—were designed to reinforce knowledge, enhance memory, and prepare participants to educate others. These games, along with evaluations, were conducted in a large room to facilitate group interaction and communication. The training took place in a multipurpose building in Bontang Barat Village, providing ample space for all participants from across Bontang City.

During the research process involving both the researcher and participants, the TPS (Transactional, Precise, and Skilled) communication model was employed. TPS played a pivotal role in disseminating breast cancer education, serving not just as a method but as a strategic foundation aimed at addressing the social challenges surrounding breast cancer. Through this model, communication became a dynamic dialogue, fostering interaction between communicators and participants, thereby enriching collective understanding. Active engagement and diverse experiences enabled participants to form shared perceptions, which not only enhanced knowledge but also cultivated empathy. The final stage of communication-built participants' skills through education grounded in SADARI (Breast Self-Examination) demonstrations. Mannequins were used to clearly convey the areas of the body that should be examined, providing a tangible reference for participants. To evaluate the effectiveness of the program, participants were given questionnaires assessing whether the education was necessary and if similar programs should be offered in the future. This feedback helped determine the overall success

and relevance of the education provided.

3. RESULT AND DISCUSSION

3.1 Conditions and rationale for the program

This program was initiated due to the limited knowledge among the people of Bontang, East Kalimantan, regarding breast cancer and its prevention. Data shows that 30% of breast and cervical cancer cases in Indonesia occur in Bontang, highlighting the urgent need for educational outreach in this area. Many individuals who had received counseling were unable to recall or explain the information provided, indicating that the knowledge shared was minimal and delivered through one-way communication, leading to eventual forgetfulness. *Jawhari & Yusuf (2024)* found that one-way communication methods, which do not allow for feedback or responses from the audience, are often ineffective.

In this study, the TPS (Transactional, Precise, and Skilled) communication model was employed, which has been shown to facilitate active interaction between instructors and participants (*Yulia & Sidharta, 2023*). This model was used to train PKK/health cadres, not only to understand the theory but also to practice it, repeat it, and eventually educate others. The goal was for those trained to address misinformation about breast cancer, implement effective practices, and utilize transactional communication methods to ensure a lasting impact on the community.

3.2 Time and location

The program targeted the PKK/Bontang City Health cadres, who are primarily women with dual responsibilities as health volunteers and housewives. Therefore, selecting an appropriate date and time for the program was crucial to ensure their participation without interfering with family obligations or other activities. Saturday was chosen as the most suitable day since it is a school holiday, meaning that mothers with school-aged children do not need to prepare packed lunches or handle other morning routines. Additionally, children can be cared for by their husbands

or other family members, as many breadwinners do not work on Saturdays. The event was scheduled for Saturday, October 22, 2023, from 7:00 AM to 11:30 AM WITA (Central Indonesian Time). More details are available in *Table 1*.

The chosen location was a spacious venue capable of accommodating a large number of participants and allowing activities to be conducted without constraints. The Multipurpose Building of West Bontang Sub-district was selected for this purpose. It was large enough to host representatives from 15 villages (100 participants), along with 25 committee members from SOCIAL Welfare FISIP USU, DOMPET DUAFA, SAPKANDARA BONTANG, and breast cancer survivors, as well as 15 guests and media personnel. In total, the room accommodated 140 people.

3.3 Material/activity materials

3.3.1 Breast cancer theory

Breast Cancer Theory was prepared with 100 questions and answers administered simultaneously through the module. This approach was adopted from the research of (*Ardiyanto et al., 2023*), which showed that repetition-based learning methods are effective in improving long-term knowledge retention. This was done with the aim that the target can memorize and have time to collaborate in understanding matters related to breast cancer and its prevention. The participants were encouraged to ask the committee any questions regarding the information provided. The first topic covered was breast cancer, including its general definition, characteristics, SADARI (breast self-examination), SADANIS (clinical breast examination), risk factors, as well as myths and facts. The second topic focused on prevention and empowerment strategies. Lastly, the third topic involved general questions related to the city of Bontang, serving as an icebreaker activity.

3.3.2 Sadari practice

Specific SADARI practices were taught to PKK/health cadres so that they could understand how to protect and

Table 1 . Samples from the storyboards

No.	Time	Event	PIC	Note
1	07:00 - 08:30	<ul style="list-style-type: none"> • Preparation • Prayer • Welcome speech • Game rules and mechanics 	Committee	
2	08:30 - 09:30	First Games: Evaluation/Competition (theory and practice)	Author	<ul style="list-style-type: none"> • Initial practical knowledge had been provided a month before • The questions and answers were given 2 weeks before the date of event (memorized)
3	09:45 - 11:30	Second Games: Word Chain and Shock Therapy	Author	Guided by medical social worker (author)
4	11:30 - 11:45	Giving gifts and taking photos together	<ul style="list-style-type: none"> • Officials • Stakeholders 	
5	11:45 - 12:00	Closing		

prevent cancer even when it was in its early stages. The practice was conducted using mannequins guided by medical social workers so that the target of the activity was able to see and immediately understand the details. According to previous research by Ruzafa-Martínez et al., (2024), practice-based training has been shown to positively impact the development of communication skills. The results of the activity indicated that all participants were enthusiastic about learning, as communication was not only bidirectional but also involved sharing experiences and engaging in hands-on practice related to SADARI using mannequins. Participants were able to visualize the boundaries for touch and ultimately practiced self-examination techniques. The brochure provided to the program participants for clarity is illustrated in Figure 1.

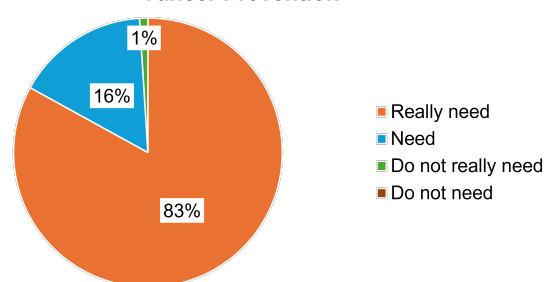


Figure 1 . Brochures given to the program targets

3.3.3 Program evaluation

The program evaluation revealed that 83% of participants recognized the need for education on breast cancer prevention, while only 1% expressed that they did not require such education. This finding aligns with research by Coombs et al. (2022), which indicated that health services in rural areas remain challenging to access, thereby exacerbating the prevalence of breast cancer in these regions. Participants noted that this was their first experience with the TPS communication model and expressed enthusiasm about meeting all the cadres from the various villages in Bontang. For further details, please refer to the pie chart, as shown in Figure 2.

Need/Do Not Need Education about Breast Cancer Prevention



Need Similar Trainings in the Future

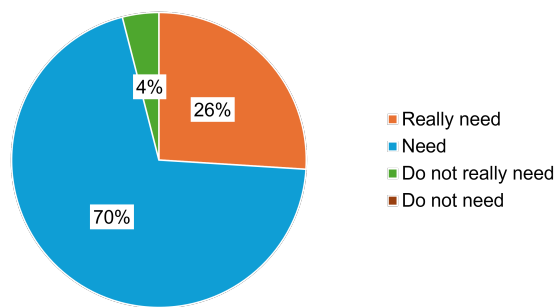


Figure 2 . Program evaluation: Percentage of participants who stated they needed breast cancer prevention - health awareness training activities

Subsequently, participants were asked about the necessity of similar training in the future. On average, they expressed a strong desire for continued education, particularly concerning further prevention of breast cancer and guidance on how to support family members affected by the disease. Notably, 70% of participants indicated a need for similar training moving forward, while only 4% stated that they did not. The positive outcomes of the training were evident from the photos taken during the sessions, which captured the enthusiastic participation of all attendees until the very end. No one voiced complaints about the duration of the activities or found them boring. This response has motivated the author to continue implementing the TPS communication model in future community service initiatives.

The training participants consisted of PKK/health cadres aged 40 years and older (Figure 3). As a result, some barriers emerged, including a lack of agility and speed in adapting to the TPS communication model, which emphasizes more dynamic activities and rapid communication. However, these challenges did not render the training a failure. To address this, additional organizers were prepared to support each group, with committee members trained in advance on the activities to be conducted. These strategies proved to be effective solutions for ensuring the success of the program. Moreover, the committee members, who possessed greater knowledge about breast cancer and its prevention, exchanged phone numbers and committed to maintaining regular communication in the future. This collaborative approach was deemed appropriate and instrumental in achieving the program's objectives.



Figure 3 . Participants involved in the community service activity

4. CONCLUSION

This research demonstrates that the community empowerment approach utilizing the TPS communication model is effective in enhancing community knowledge and attitudes towards the importance of breast cancer prevention education in Bontang City. Through training activities that encourage active participation, PKK/Health cadres not only acquire theoretical knowledge but also develop practical skills that can be shared with other community members. By prioritizing two-way and participatory communication, community empowerment fosters a deeper understanding of the significance of early detection and prevention of breast cancer. Furthermore, engaging and interactive learning methods have been shown to improve information retention and boost participants' motivation to apply the knowledge acquired.

Medical Social Workers are expected to play a pivotal role in educating the public about health promotion, particularly concerning breast cancer prevention. It is recommended that the Bontang government and relevant stakeholders collaborate to develop localized policies on breast cancer prevention and actively engage in education and training programs. The TPS communication model can be utilized as an alternative method for conducting similar outreach initiatives aimed at a broader audience. Additionally, PKK/Health volunteers are encouraged to continually enhance their knowledge and share their learnings with other volunteers who have not participated, as well as with the wider community in each subdistrict.

A limitation of this study is that the researchers did not measure changes in participants' knowledge before and after the program. While participant satisfaction with the program was assessed, a comprehensive evaluation of the program's effectiveness should include knowledge assessments. This measurement is crucial for improving health literacy and enhancing the program's design in future iterations.

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Their eagerness to encourage the committees to extend similar training to other cadres who have not yet participated is commendable.

We also express our gratitude to the Head of West Bontang District for providing the necessary facilities, particularly the meeting space. Special thanks to Mrs. Anwar Sadat, the chairwoman of the West Bontang PKK, for her enthusiastic participation throughout the event, as well as to several officials from other Bontang cities who contributed to the program.

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CONFLICT OF INTERESTS

The authors declare there was no conflict of interest during the implementation of the program.

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