

Communicating Barriers to Breast Cancer Screening and Treatment Among Sarawakian Women: An Extended Parallel Process Model Analysis

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ABSTRACT

Breast cancer is the most common cancer among Malaysian women, with an incidence rate of 38.9 per 100,000 between 2017 and 2021. However, many women in Sarawak remain hesitant to engage in regular screening and treatment. While various reasons have been suggested, the primary barriers have yet to be thoroughly investigated. This study examined the barriers to breast cancer screening and treatment among Sarawakian women. Semistructured interviews were conducted with nine women aged 20 to 70, and the transcripts were analysed using the Extended Parallel Process Model (EPPM). The results revealed that fear control responses; such as denial of personal vulnerability and avoidance of cancerrelated discussions that led to disengagement from preventive healthcare. Many participants believed that discussing or thinking about breast cancer could invite bad luck or cause emotional distress. Financial constraint was not identified as a primary barrier; rather, psychological avoidance and minimising personal risk emerged as more significant factors. Fear of diagnosis or treatment outcomes contributed to reluctance in seeking medical advice, even among those aware of the disease's severity. The study highlights the need for targeted communication strategies that address fear-driven avoidance and provide emotional and psychological support to reduce fear control responses and promote proactive engagement in screening and treatment.

Keywords: breast cancer, Extended Parallel Process Model, fear control

1. INTRODUCTION

Breast cancer is the leading cause of cancer-related deaths among women in Malaysia, with an incidence rate of 38.9 per 100,000 between 2017 and 2021 (Institut Kanser Negara, 2024). Despite ongoing awareness campaigns and encouragement for early screening, the uptake of breast cancer screening and adherence to treatment remain inadequate, particularly among women from rural and minority communities (Ferreira et al., 2021; Miller et al., 2019). Although awareness of breast cancer and its implications is relatively high, psychological, sociocultural, and economic barriers continue to impede early detection and timely treatment (Latunji & Akinyemi, 2018).

One of the most prominent psychological barriers is fear, which often manifests as "fear control" responses—defensive behaviours such as avoidance or denial in reaction to perceived health threats (Dillard et al., 2018; Hofmann & Hay, 2018). These responses include reluctance to seek healthcare services (Taha et al., 2012), underestimation of personal risk, and the tendency to avoid information that may induce anxiety (Mogg & Bradley, 2016). This avoidance is further

compounded by cultural beliefs that regard cancer as a taboo subject and by a limited understanding of the benefits of early detection (Khan et al., 2022).

In Sarawak, traditional health beliefs significantly influence how women respond to breast cancer-related information (Segar et al., 2024). Many rely on traditional medicine and prefer self-management of health conditions, often delaying formal medical consultation (Ahmed et al., 2023). Concerns about emotional disruption, combined with financial anxieties, further discourage engagement with breast health practices (Schliemann et al., 2022). In addition, societal norms that discourage open discussion of personal health, alongside the stigma associated with cancer diagnoses, present further obstacles to proactive screening and treatment (Akin-Odanye & Husman, 2021; Oystacher et al., 2018). These challenges are particularly evident in Sarawak's Chinese community, where Western medical practices are often viewed with scepticism, and traditional approaches are favoured (Chew et al., 2011; Ariff & Beng, 2006).

Economic barriers also affect access to screening and treatment. These include financial constraints, lack of insurance coverage, and the high cost of medical care (Frazier et al., 2023; Shah et al., 2020). In rural areas of Sarawak, the geographical distribution of healthcare services further compounds the issue, with limited availability of specialised screening and treatment facilities outside urban centres (Hamid et al., 2023). Consequently, there is a higher prevalence of late-stage diagnoses, leading to poorer prognoses and increased mortality (Mohan et al., 2021). Understanding the specific barriers faced by women in this region is crucial for developing culturally appropriate strategies that address their unique healthcare needs. This study explores the factors that hinder Sarawakian women from seeking breast cancer screening and treatment.

2. LITERATURE REVIEW

Breast cancer screening and treatment uptake is influenced by a complex interplay of psychological, sociocultural, economic, and structural barriers. Despite advances in medical technology and widespread awareness campaigns, breast cancer remains a leading cause of mortality among women globally. Psychological barriers such as fear, denial, and stigma—frequently prevent women from participating in early screening or seeking timely treatment. Taha et al. (2012) reported that fear of a positive diagnosis leads women in Jordan to avoid mammograms due to concerns over femininity and social status. In Uganda, women perceived breast cancer as a "death sentence," causing delays in medical care until the disease progressed (Ilozumba et al., 2022). Similarly, in Malaysia, Schliemann et al. (2022) found that fear of emotional disruption and financial worries deterred women from engaging in breast health discussions. These fear-driven responses often lead to minimisation of personal risk, avoidance of cancer-related information, and disengagement from healthcare systems (Gyeltshen et al., 2024).

Sociocultural norms also influence health-seeking behaviours. In many Asian contexts, traditional beliefs link breast cancer to misfortune or divine punishment. Donnelly et al. (2013) observed that in China, such beliefs discouraged regular screening. In rural Malaysia, women often rely on herbal or spiritual remedies, contributing to delays in seeking formal medical treatment (Muhamad et al., 2012). These beliefs are reinforced by taboos around discussing personal health matters and by perceptions that cancer is incurable or shameful.

Economic barriers further hinder access to screening and treatment, especially in lowand middle-income regions. McAlearney et al. (2007) and Kaur et al. (2023) identified financial constraints as primary obstacles to early detection. In Malaysia, Shah et al. (2020) reported that women from lower socioeconomic backgrounds were less likely to undergo mammograms or adhere to prescribed treatments due to concerns over cost. Fear of becoming a financial burden to their families was also cited as a key deterrent. The authors emphasized the importance of government support mechanisms, such as subsidies and insurance schemes, to improve screening uptake.

Structural limitations, particularly in rural regions such as Sarawak, exacerbate these challenges. Health services in Malaysia are concentrated in urban centres, while rural areas lack screening facilities, trained personnel, and transport infrastructure (Bismelah et al., 2024). Women in remote areas must often travel long distances to access care. These findings are mirrored in high-income countries like Canada and the United States, where rural populations also face healthcare disparities, including limited access to screening technologies and longer diagnostic delays (Coombs et al., 2022). Innovative solutions such as mobile screening units and telehealth consultations have been proposed to bridge this gap and reach underserved populations.

In summary, the literature highlights a convergence of psychological fears, cultural beliefs, financial barriers, and healthcare inaccessibility that impede breast cancer screening and treatment. While studies in other global contexts provide valuable insight, there is limited research focusing on how these factors intersect specifically among Sarawakian women. This study addresses that gap by exploring the unique barriers faced by women in Sarawak through the lens of the Extended Parallel Process Model (EPPM).

3. THEORETICAL FRAMEWROK OF STUDY

The Extended Parallel Process Model (EPPM), introduced by Witte (1992), offers a framework for understanding how individuals respond to fear-based health messages. It posits that when people are confronted with a fear appeal message, they evaluate the perceived threat (severity and susceptibility) and their perceived efficacy (response efficacy and self-efficacy) to determine their response. Depending on these evaluations, individuals either engage in danger control or fear control processes.

Danger control is a cognitive response that motivates adaptive behaviours to mitigate the risk, such as seeking medical help or adopting recommended health practices (Witte et al., 1996). In contrast, fear control is an emotional reaction, where individuals focus on alleviating their feelings of fear rather than addressing the actual threat. This often leads to maladaptive responses, such as denial, defensive avoidance, or rejecting the health message altogether (Witte & Allen, 2000; Lazarus, 1991). Figure 1 shows the constructs of the EPPM (Witte, 1996) which shows the fear control and danger control processes in response to fear appeal.

Fear control, the primary focus of this study, encompasses the psychological processes that individuals employ when faced with health-related fear appeals. Unlike danger control, which encourages proactive behaviours aimed at mitigating perceived threats, fear control mechanisms often involve emotional responses that divert attention from the health threat itself. This response can manifest in various forms, such as denial, avoidance, and seeking reassurance, ultimately inhibiting constructive engagement with health-promoting behaviours (Witte, 1994; Popova, 2012).

An example of a fear control strategy is seeking social support. Individuals may discuss their fears with friends and family to gain comfort and reassurance. While sharing these concerns can provide temporary emotional relief, it often fails to address the underlying health risks associated with cancer. This reliance on social support can inadvertently reinforce avoidance behaviours, as individuals may choose to focus on emotional comfort rather than confronting their health threats (Witte & Allen, 2000).



Figure 1. Extended Parallel Process Model (Witte, 1996) shows fear and danger control processes in response to fear appeal

Another common aspect of fear control is defensive avoidance. Individuals may deliberately avoid exposure to information about breast cancer or engage in discussions surrounding the topic. Research indicates that people often prefer to remain ignorant about their health risks, opting to "not know" their likelihood of developing breast cancer as a coping strategy (Emanuel et al., 2015). This avoidance can lead to a detrimental cycle where a lack of awareness prevents individuals from seeking necessary screenings and treatments, thus exacerbating health outcomes.

One prevalent fear control behaviour is denial, where individuals minimise their perceived risk by downplaying the severity of a health threat. For instance, some women may convince themselves that they are not susceptible to breast cancer because they lack a family history of the disease (Yang, et al., 2010). This cognitive distortion can lead to a false sense of security, preventing them from recognising the necessity of regular screenings and preventive measures (Karayurt, et al., 2008). This behaviour not only alleviates immediate anxiety but also contributes to long-term health risks, as individuals fail to engage in essential health behaviours. Emotional barriers created by fear control processes can lead to a pattern of avoidance and underutilisation of screening services, ultimately hindering early detection and treatment outcomes (McMahan et al., 1998; Witte et al., 1996).

This is a relevant model for studying barriers to cancer screening and treatment uptake, as shown by a number of past studies that have employed this framework for cancer. For example, Razi, et al. (2023) found that high levels of fear among women from three health centres in Khalkal, Northwest of Iran led to increased denial and avoidance behaviours, resulting in lower rates of participation in recommended screening practices. Similarly, fear of diagnosis and treatment contributed to emotional distress, prompting women to engage in avoidance behaviours rather than proactive health management for cervical cancer in Massachusetts General Hospital Cancer Center (Hall, et al., 2019).

4. METHODOLOGY

This study employed a descriptive qualitative research design to explore fear control responses to breast cancer information among Chinese women in Kuching, Malaysia. A total of nine participants, aged between 20 and 70 years, were recruited using purposive sampling. Inclusion

criteria required participants to be Chinese women residing in Kuching, with no exclusions based on prior experience with breast cancer or current health status.

The data collection instruments included a demographic questionnaire, stimulus materials, and a semi-structured interview guide. The demographic form gathered data on age, occupation, education level, and personal or family history of breast cancer. The stimulus materials consisted of breast cancer awareness posters produced by the National Cancer Institute of Malaysia and the Ministry of Health. These posters featured fear appeal elements, including statistics, symptom descriptions, and identified risk factors such as family history, obesity, and hormonal influences.

The interview guide focused on eliciting fear control behaviours—such as denial, defensive avoidance, and reassurance-seeking. Sample probing questions included: "How does the information in this poster make you feel?" and "What thoughts come to mind when you consider the risks mentioned here?"



Figure 2. Posters on the risk and symtopms of breast cancer, taken from the National Cancer Institute website (Kanser Payudara, n.d.)

During data collection, participants were shown the posters and asked to review them. A semi-structured interview followed immediately, allowing participants to express their emotional reactions and interpretations of the content. With participants' consent, all interviews were audio-recorded and subsequently transcribed verbatim.

Data were analysed thematically, with coding focused on fear control mechanisms. This approach aimed to identify emotional and cognitive patterns in how participants responded to breast cancer risk messaging. The findings offer insights into the psychological barriers that discourage engagement with breast health behaviours and highlight the need for more empathetic and culturally sensitive health communication strategies. Monica Kah-Pei Liaw & Su-Hie Ting / Communicating Barriers to Breast Cancer Screening and Treatment Among





4. **RESULTS**

The results indicate that denial and avoidance are the primary fear control responses observed among participants. These responses were aimed at reducing emotional discomfort and were manifested through minimization of risk, rationalisation of inaction, and superficial engagement (Figure 4). Participants often offered oversimplified justifications for avoiding screening and treatment, effectively downplaying the perceived severity or likelihood of developing breast cancer.



Figure 4. Barriers to seeking breast cancer screening and treatment among Sarawakian women

A thematic analysis was conducted using the Extended Parallel Process Model (EPPM) as the guiding framework to better illustrate the emergent themes from participant interviews Interview transcripts were coded and organised into four primary themes reflecting fear control responses: **Denial of Risk, Rationalisation of Inaction, Superficial Engagement**, and **Role of Social Support**. These themes capture the cognitive and emotional strategies participants used to manage their perceptions of breast cancer risk. Table 1 below summarises each theme along with representative quotes that highlight how Sarawakian women respond to breast cancer awareness and preventive healthcare.

Theme	Page	Description	Quote
Denial of Risk	6	Downplaying personal susceptibility based on good health or no family history	"I didn't have any family history I always thought, 'I'm healthy; it won't happen to me."
Denial of Risk	6	Emotional distance due to lack of direct experience	"I didn't really know anyone personally who had breast cancer I never had a direct connection."
Rationalisation of Inaction	6	Reinterpreting symptoms as minor to avoid anxiety	"I didn't think much of it at first maybe just a cyst or something."
Superficial Engagement	2	Expressing awareness without translating it into preventive action	"This makes me more aware of the importance of breast cancer."
Role of Social Support	6	Relying on emotional support to reduce fear and anxiety	"I had an amazing support system they made sure I never felt alone."
Role of Social Support	11	Encouraging family dialogue about health issues	"I plan to discuss with my husband and encourage him to be more supportive of my health initiatives."

Table 1: Barrier Thematic Analysis of Fear Control Responses

As seen in Table 1, denial and rationalisation emerged as the most frequent fear control responses, while social support appeared as a potential mitigating factor. These findings highlight the importance of culturally attuned interventions that move beyond general awareness to directly address emotional and psychological barriers to early screening and treatment. Social support systems were found to reduce fear, encourage open health discussions, and lower psychological resistance to breast cancer screening. Overall, this analysis illustrates how denial, rationalisation, and superficial engagement function as fear control mechanisms that inhibit proactive health behaviour among Sarawakian women. However, the presence of supportive social networks suggests promising pathways for fostering engagement. Culturally sensitive communication strategies that recognise and target these emotional and cognitive patterns may significantly improve early detection efforts in similar populations.

5. DISCUSSION AND CONCLUSION

This study examined the psychological barriers that inhibit breast cancer screening and treatment uptake among Sarawakian women, identifying three dominant fear control responses: denial of risk, rationalisation of inaction, and superficial engagement. These findings challenge assumptions in earlier literature, such as Al Abdul Kader et al. (2023), which emphasised fear of

diagnosis as a primary deterrent. In contrast, our results reveal that emotional distancing and cognitive coping strategies play a more decisive role in shaping behavioural inaction.

Denial emerged as the most pervasive barrier. Many participants dismissed their susceptibility by citing the absence of family history or good personal health, mirroring avoidance behaviours reported in studies by Norsa'adah et al. (2012) and Rubinstein et al. (2011). This psychological distancing acts as a self-reassuring mechanism to alleviate anxiety but comes at the cost of deferring preventive actions. It reflects a deeper tension between knowledge and action, whereby acknowledging vulnerability would require confronting uncomfortable possibilities. Thus, denial becomes a buffer to reduce cognitive dissonance, allowing individuals to feel secure while avoiding the implications of screening or diagnosis.

The tendency to rationalise inaction was also evident. Some participants interpreted symptoms or risk cues as benign, thereby deflecting concern. For example, attributing potential warning signs to non-serious causes such as cysts helped participants maintain emotional equilibrium. As noted by Özdemir and Kuru (2023), such cognitive distortions are common mechanisms used to minimise health-related anxiety. While this may provide short-term emotional relief, it perpetuates harmful delays in seeking care.

A novel contribution of this study lies in its identification of superficial engagement as a subtle but significant barrier. While participants demonstrated awareness of breast cancer and its implications, many failed to translate that awareness into concrete behavioural steps, such as scheduling mammograms or practicing self-examination. This distinction between knowing and doing suggests that information alone is insufficient. Unlike knowledge deficits, which can be addressed with education, emotional disengagement requires more nuanced, affective interventions that address the psychological resistance to action (cf. Beshir et al., 2012; Kirubakaran et al., 2017).

Despite the dominance of fear control responses, the findings also point to social support as a potential facilitator of proactive health behaviours. Participants who reported emotional backing from family and friends were more inclined to consider engaging in screening or discussing health concerns. This aligns with Benson et al. (2020), who found that social networks play a critical role in buffering health-related anxieties. Health communication strategies should therefore integrate social support mechanisms—particularly within culturally grounded interventions—to normalise conversations about breast health and reduce stigma.

One notable limitation of this study is its limited exploration of the cultural norms, taboos, and stigma associated with breast cancer within the Sarawakian context. While traditional beliefs and attitudes likely interact with psychological barriers, these influences were not examined in depth. Future research should explore how cultural narratives and communal values shape fear responses and decision-making related to cancer screening and treatment. A deeper understanding of these dynamics is essential for developing interventions that are both effective and culturally respectful.

In conclusion, this study emphasizes the need to move beyond awareness campaigns and address the emotional and psychological underpinnings of health inaction. Denial, rationalisation, and disengagement are not mere lapses in knowledge—they are emotionally rooted responses to fear and uncertainty. To overcome these barriers, health promotion efforts must engage both the mind and the heart, using culturally sensitive, community-based approaches that reduce fear, strengthen social ties, and reframe screening as an act of empowerment rather than anxiety.

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REFERENCES

- Ahmed, G. E. M., Ahmed, E. Y. M., Ahmed, A. E., Hemmeda, L., Birier, A. B., Abdelgadir, T., Hassan, H. M. A., Alfadul, E. S. A., Bakr, M., & Sadig, E. (2023). Prevalence and reasons to seek traditional healing methods among residents of two localities in North Kordofan State, Sudan: A cross-sectional study. *Health Science Reports*, 6(8), e1487. https://doi.org/10.1002/hsr2.1487
- Akin-Odanye, E. O., & Husman, A. J. (2021). Impact of stigma and stigma-focused interventions on screening and treatment outcomes in cancer patients. *Ecancer Medical Science*, *15*, 1308. <u>https://doi.org/10.3332/ecancer.2021.1308</u>
- AlAbdulKader, A., Gari, D., Al Yousif, G., Alghamdi, A., AlKaltham, S., AlDamigh, F., AlEisawi, Y., AlGhamdi, A., Al-Hayek, O., & AlMudhi, A. (2023). Perceived barriers and facilitators to breast cancer screening among women in Saudi Arabia. *Breast Cancer: Targets and Therapy*, 15, 505–513. <u>https://doi.org/10.2147/BCTT.S406029</u>
- Ariff, K. M., & Beng, K. S. (2006). Cultural health beliefs in a rural family practice: A Malaysian perspective. *Australian Journal of Rural Health*, 14(1), 2–8. <u>https://doi.org/10.1111/j.1440-1584.2006.00747.x</u>
- Benson, R. B., Cobbold, B., Boamah, E. O., Akuoko, C. P., & Boateng, D. (2020). Challenges, coping strategies, and social support among breast cancer patients in Ghana. *Advances in Public Health, 2020*, 4817932. <u>https://doi.org/10.1155/2020/4817932</u>
- Bismelah, L., Masron, T., Ahmad, A., Mohd Ali, A., & Echoh, D. (2024). Geospatial assessment of healthcare distribution and population density in Sri Aman, Sarawak, Malaysia. *Geografia–Malaysian Journal of Society and Space, 20*(3), 51–67.
- Chew, K. S., Tan, T. W., & Ooi, Y. T. (2011). Influence of Chinese cultural health beliefs among Malaysian Chinese in a suburban population: A survey. *Singapore Medical Journal*, *52*(4), 252–256.
- Dillard, J. P., Meczkowski, E., & Yang, C. (2018). Defensive reactions to threatening health messages: Alternative structures and next questions. *International Journal of Communication*, *12*, 973–995.
- Donnelly, T. T., Al Khater, A. H., Al-Bader, S. B., Al Kuwari, M. G., Al-Meer, N., Malik, M., Singh, R., Chaudhry, S., & Fung, T. (2013). Beliefs and attitudes about breast cancer and screening practices among Arab women living in Qatar: A cross-sectional study. *BMC Women's Health*, *13*, 49. <u>https://doi.org/10.1186/1472-6874-13-49</u>
- Emanuel, A. S., Kiviniemi, M. T., Howell, J. L., Hay, J. L., Waters, E. A., Orom, H., & Shepperd, J. A. (2015). Avoiding cancer risk information. *Social Science & Medicine*, *147*, 113–120. https://doi.org/10.1016/j.socscimed.2015.10.058

- Ferreira, C. S., Rodrigues, J., Moreira, S., Ribeiro, F., & Longatto-Filho, A. (2021). Breast cancer screening adherence rates and barriers in ethnic, cultural and religious minorities: A systematic review. *Molecular and Clinical Oncology*, 15(1), 139. <u>https://doi.org/10.3892/mco.2021.2301</u>
- Gyeltshen, T., Teh, H. S., Loo, C. E., Hing, N. Y. L., Lim, W. Y., Subramaniam, S., Wong, W. J., Wong, Z. S., & Hwong, W. Y. (2024). Factors influencing presentation delay among cancer patients: A cross-sectional study in Malaysia. *BMC Public Health*, 24(1), 1260. https://doi.org/10.1186/s12889-024-18643-2
- Hall, D. L., Jimenez, R. B., Perez, G. K., Rabin, J., Quain, K., Yeh, G. Y., Park, E. R., & Peppercorn, J. M. (2019). Fear of cancer recurrence: A model examination of physical symptoms, emotional distress, and health behavior change. *Journal of Oncology Practice*, 15(9), e787–e797. <u>https://doi.org/10.1200/JOP.18.00787</u>
- Holfmann, S. G., & Hay, A. C. (2018). Rethinking avoidance: Toward a balanced approach to avoidance in treating anxiety disorders. *Journal of Anxiety Disorders*, 55, 14–21. <u>https://doi.org/10.1016/j.janxdis.2018.03.004</u>
- Ilozumba, O., Kabukye, J., de Keizer, N., Cornet, R., & Broerse, J. E. W. (2022). Cancer as a death sentence: Developing an initial program theory for an IVR intervention. *Health Promotion International*, *37*(3), daac070. <u>https://doi.org/10.1093/heapro/daac070</u>
- Kaur, K., Jajoo, R., Naman, S., Kandwal, T., Brar, G. S., Garg, P., Bhullar, P. S., & Baldi, A. (2023). Identifying barriers to early diagnosis of breast cancer and perception of women in Malwa region of Punjab, India. *Global Health Journal*, *7*(1), 34–42.
- Karayurt, O., Ozmen, D., & Cetinkaya, A. C. (2008). Awareness of breast cancer risk factors and practice of breast self-examination among high school students in Turkey. *BMC Public Health*, 8, 359. <u>https://doi.org/10.1186/1471-2458-8-359</u>
- Miller, B. C., Bowers, J. M., Payne, J. B., & Moyer, A. (2019). Barriers to mammography screening among racial and ethnic minority women. *Social Science & Medicine, 239*, 112494. https://doi.org/10.1016/j.socscimed.2019.112494
- Mogg, K., & Bradley, B. P. (2016). Anxiety and attention to threat: Cognitive mechanisms and treatment with attention bias modification. *Behaviour Research and Therapy*, *87*, 76–108. <u>https://doi.org/10.1016/j.brat.2016.08.001</u>
- Popova, L. (2012). The extended parallel process model: Illuminating the gaps in research. *Health Education & Behavior, 39*(4), 455–473.
- Razi, S., Kivi, M. S., & Gholipour, F. (2023). Self-efficacy in using mammography and fear of breast cancer in women. *Journal of Midwifery & Reproductive Health*, *11*(3), 3872–3878.
- Rubinstein, W. S., O'Neill, S. M., Rothrock, N., Starzyk, E. J., Beaumont, J. L., Acheson, L. S., Wang, C., Gramling, R., Galliher, J. M., & Ruffin, M. T. (2011). Components of family history associated with women's disease perceptions for cancer: A report from the Family Healthware[™] Impact Trial. *Genetics in Medicine*, 13(1), 52–62. <u>https://doi.org/10.1097/GIM.0b013e3181fbe485</u>
- Schliemann, D., Hoe, W. M. K., Mohan, D., Allotey, P., Reidpath, D. D., Tan, M. M., Taib, N. A. M., Donnelly, M., & Su, T. T. (2022). Challenges and opportunities for breast cancer early

detection among rural dwelling women in Segamat District, Malaysia: A qualitative study. *PLOS ONE*, *17*(5), e0267308. <u>https://doi.org/10.1371/journal.pone.0267308</u>

- Segar, J. A., Xuan, T. R., Alahakoon, A. M. G. N., Ravi, H. A., Moe, S., Uthamalingam, M., & Htay, M. N. N. (2024). Women's knowledge, attitudes, and perception on personalized risk-stratified breast cancer screening: A cross-sectional study in Malaysia. *Asian Pacific Journal of Cancer Prevention*, 25(4), 1231–1240. <u>https://doi.org/10.31557/APJCP.2024.25.4.1231</u>
- Taha, H., Al-Qutob, R., Nyström, L., Wahlström, R., & Berggren, V. (2012). "Voices of fear and safety": Women's ambivalence towards breast cancer and breast health: A qualitative study from Jordan. *BMC Women's Health*, *12*, 21. <u>https://doi.org/10.1186/1472-6874-12-21</u>
- Witte, K. (1992). Putting the fear back into fear appeals: The extended parallel process model.CommunicationMonographs,59(4),329–349.https://doi.org/10.1080/03637759209376276
- Witte, K., & Allen, M. (2000). A meta-analysis of fear appeals: Implications for effective public health campaigns. *Health Education & Behavior*, *27*(5), 591–615.