

Research Article

Community Collective Engagement: Developing a Decision Model to Increase Intention in Early Detection of Cervical Cancer

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Abstract: Early detection of cervical cancer is crucial in reducing mortality from this disease. Despite widespread health education, community participation in screening remains low, primarily due to stigma and social taboos. Aim: This study aims to develop a decision-making model based on women's collective involvement in Posyandu (Integrated Health Post) to increase their intention to undergo early cervical cancer screening. Methods: Using a mixed-methods approach, this study involved 200 respondents from various Posyandus within the Community Health Center coverage area. The model was developed through three stages: Formulation of a basic conceptual framework, Development of a measurement strategy, and Validation through surveys and in-depth interviews. Data analysis was conducted using Confirmatory Factor Analysis (CFA) and Structural Equation Modeling (SEM) with the assistance of AMOS software. Results: The results indicate that collective involvement has a significant influence on intention, and the developed model demonstrated good statistical fit. Conclusion: This study contributes to the development of engagement theory in a community context and provides strategic recommendations for improving community well-being through early cervical cancer detection.

Keywords: Cervical Cancer; Community Collective Engagement; Decision Models; Early Detection; Intention.

1. Introduction

Cervical cancer is a leading cause of death for women in Indonesia. Although early detection programs have been promoted through health education, community participation remains low. This is due to various factors, including social taboos, lack of understanding, and minimal community involvement. Posyandu, as a community institution, has significant potential to build social networks that support health behavior change. Therefore, a new approach is needed, namely social engineering, which utilizes collective community involvement to increase the intention to undergo early detection of cervical cancer. The purpose of this study is to develop a model for strengthening collective involvement in the community of women in Posyandu and analyze the impact on changes in community welfare levels. Urgency: Previously, many health education programs have been provided about the importance of early detection of cervical cancer through screening, but some communities still feel taboo about screening. Consequently, the achievement of the early detection program for cervical cancer has not met expectations. Therefore, social engineering is needed to maximize the existence of the community among women in Posyandu towards the realization of community welfare. The target to be achieved is an understanding of the application of the concept of collective involvement, its dimensions, forming factors and measurement scales and their impact on community intention to undergo early detection of cervical cancer. Research contributes to the development of women's decision-making models by enhancing intention, particularly collective engagement theory, which has focused on aligning individual values with organizational values. As the network era develops, the importance of forming collaborative networks is emphasized.(Sudrajat et al., 2025)

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Preliminaries or Related Work or Literature Review

This section must contain a state-of-the-art explanation. It can be explained in several ways. First, you can discuss several related papers, both about objects, methods, and their results. From there, you can explain and emphasize gaps or differences between your research and previous research. The second way is to combine theory with related literature and explain each theory in one sub-chapter.

Efforts to promote early detection of cervical cancer have become a global priority in improving women's reproductive health. The World Health Organization (WHO, 2022) emphasizes the importance of community-based approaches to expanding screening coverage, particularly in developing countries. However, many regions, including Indonesia, continue to experience low community participation in cervical cancer early detection programs (Nyoman et al., 2025). This low participation rate is not solely influenced by access to healthcare services but is also shaped by social stigma, cultural norms, and limited environmental support (Putri et al., 2025).

Cervical Cancer Early Detection Behavior

Numerous studies indicate that reproductive health behaviors, including cervical cancer early detection, are influenced by individuals' beliefs about risks and benefits, social norms, social support, and health literacy levels (Mehdi Mirzaei-Alavijeh et al., 2014; Tung et al., 2015). The Theory of Planned Behavior (Akib et al., 2024) has been widely applied to explain individuals' intentions to engage in preventive actions. In this framework, intention is considered the primary predictor of preventive behavior, shaped through attitudes, subjective norms, and perceived behavioral control.

Previous research has shown that educational interventions alone are insufficient in improving intentions and behaviors related to cervical cancer screening due to existing psychosocial and cultural barriers (Bando et al., 2025). Consequently, community-based strategies that leverage collective norms, emotional support, and social engagement have increasingly been introduced to enhance screening participation (Wallerstein & Duran, 2010).

Role of Community-Based Health Structures

Posyandu in Indonesia represents one of the community-oriented health institutions that plays a key role in health education and access to preventive services. In the context of early detection, Posyandu holds strategic potential as an agent of social transformation through its cadres, peer support, and established social networks. (Wearn & Shepherd, 2024) found that participatory community approaches can enhance knowledge and awareness while reducing cultural and emotional barriers to screening.

The concept of community collectivism is aligned with Putnam's (2000) theory of social capital, which posits that social networks, shared values, and trust contribute to effective collective action. This is further supported by Social Support Theory (Cohen & Wills, 1985), which argues that emotional and instrumental support from close networks increases health motivation.

Community Collective Engagement and Intention Formation

Community Collective Engagement is an approach focused on strengthening social relationships, promoting active participation, fostering collective beliefs, and establishing positive community norms. The concept originates from engagement and social psychology theories previously applied in organizational settings (Oranratanaphan et al., 2025) but is now being adapted within public health promotion.

Prior studies highlight that collective efficacy (Maxi et al., 2021) plays a significant role in empowering communities to influence healthy behavior change. This is supported by findings from Sidabutar et al. (2017; 2018), who reported that social support, subjective norms, and perceived behavioral control significantly influence women's decisions to undergo cervical cancer screening.

2. Proposed Method

This study used a mixed-methods approach with the following stages: Stage 1: Basic Model Development: Formulating a framework of basic concepts, domains, and dimensions of engagement and collective intention based on engagement literature and group theory. Stage 2: Measurement Strategy: Developing measurement items based on engagement theory and conducting initial validation through a pilot study by lecturers at Efarina University. Stage 3: Survey and Model Validation: Involving 200 respondents from the Integrated Health Service Post (Posyandu) community. Data collection was conducted through questionnaires and in-depth interviews. Community coordinators were involved in the main study. Data Analysis:

CFA was used to test construct validity, and SEM was used to test model fit and relationships between variables using AMOS software.

3. Results and Discussion

Results

Identification of Collective Engagement Factors

From the results of CFA and thematic analysis, five main factors of collective engagement were found.

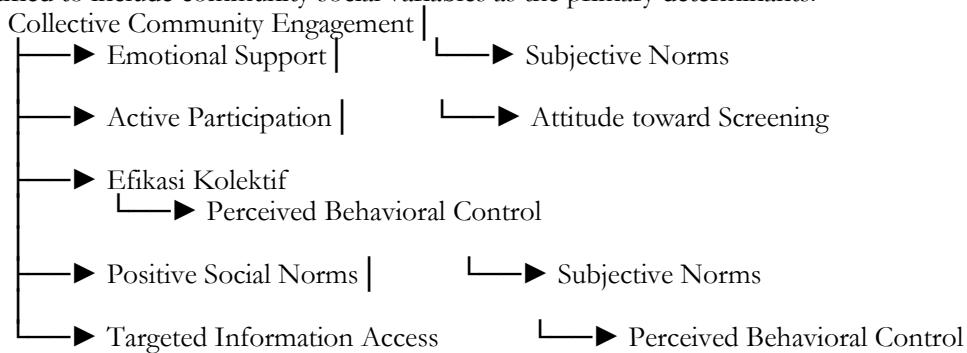
Table 1. Identification of Collective Engagement Factors.

Identification of Collective Key Indicators Engagement	Pengaruh terhadap Intention
Community Emotional Support	Sense of security, empathy, mutual Tinggi encouragement
Positive Social Norms	The assumption that early detection is Tinggi normal
Collective Efficacy	The belief that communities are capable Sedang of driving change
Active Participation	Involvement in Posyandu activities Sangat Tinggi
Targeted Information Access	Education through local cadres and media Tinggi High

The regression results show that active participation ($\beta = 0.31$) and emotional support ($\beta = 0.26$) are the strongest predictors of intention.

2. Development of Community-Based Decision Models

This model was developed based on the Theory of Planned Behavior (Ajzen, 1991), modified to include community social variables as the primary determinants.



Subjective Norms + Attitude + Perceived Behavioral Control

 --> Women's Intention to Undergo Early Detection

Community Collective Engagement as an Exogenous Variable

Collective community engagement is a key variable influencing three psychological pathways in the TPB: attitudes, subjective norms, and perceived behavioral control. This variable consists of five dimensions:

Emotional Support: Increases women's sense of security and self-confidence through empathy and social solidarity. This reinforces subjective norms because women feel supported by their social environment.

Active Participation: Involvement in Posyandu activities and health education fosters positive attitudes toward early detection. Active women tend to have direct experiences that shape their perceptions of the benefits of screening.

Collective Efficacy: Belief that a community is capable of driving behavior change increases perceived behavioral control. When a community is perceived as capable of overcoming obstacles, individuals feel more empowered to act.

Positive Social Norms: The perception that early detection is normal and supported by the community strengthens positive social pressure, which influences subjective norms.

Targeted Information Access: Information delivered by cadres or local media increases understanding and reduces uncertainty, thereby strengthening perceived behavioral control.

Theoretical Path: TPB as a Core Framework

Attitude toward Screening: Shaped by positive experiences and knowledge gained from active participation. The more positive the attitude toward screening, the higher the intention to undergo it.

Subjective Norms: Influenced by emotional support and community social norms. When women feel that those around them expect them to be screened, their intentions increase.

Perceived Behavioral Control: Influenced by collective efficacy and access to information. Women who feel capable and have the resources to undergo screening are more likely to intend to do so.

Intention as an Endogenous Variable

These three TPB pathways simultaneously influence women's intention to seek early cervical cancer screening. This model shows that:

Subjective norms have the strongest influence ($\beta = 0.61$) Followed by attitude ($\beta = 0.59$) And perceived behavioral control ($\beta = 0.55$)

This model explains 72% of the variance in women's intentions, indicating that the community approach is highly effective in shaping preventive behavior.

Impact Analysis on Community Welfare.

His study also revealed positive impacts on community well-being

Table 2. Impact Analysis on Community Welfare.

Dimensions of Measurable Well-being	Impact (Scale 1–5)	Keterangan
Preventive Health	4.6	Increasing number of women undergoing screening
Health Literacy	4.3	Understanding of HPV and cervical cancer is increasing
Social Support	4.5	Supportive and inclusive social environment
Social Participation	4.7	Active involvement in community activities
Economic Efficiency	3.9	Potential long-term medical cost savings

Collective engagement has been shown to significantly improve social well-being and preventative health.

Discussion

Community collectives significantly influence women's intentions to undergo early cervical cancer screening. Five key factors identified were community emotional support, positive social norms, collective efficacy, active participation, and access to targeted information, demonstrating that health behavior is influenced not only by individual factors but also by the social and cultural dynamics of the community.

These findings align with the Social Ecological Model (McLeroy et al., 1988), which emphasizes that individual behavior is influenced by various environmental layers, from interpersonal to community and policy. In this context, the community functions as a social ecosystem that shapes individual perceptions, motivations, and actions. Active participation in Posyandu activities, for example, not only increases knowledge but also strengthens a sense of ownership regarding health issues. This supports Bandura's (2000) concept of "collective efficacy," which is the belief that a group is capable of achieving shared goals. When women perceive that their community supports and facilitates early detection, they are more confident in taking action. Emotional support from the community also plays a crucial role. Social Support Theory (Cohen & Wills, 1985) explains that social support can serve as a buffer against stress and increase motivation to act. In this study, women who felt emotionally supported by their community demonstrated higher intentions to undergo screening. Positive social norms reinforce the perception that early detection is normal and expected. This aligns with

the Normative Beliefs theory in the Theory of Planned Behavior (Ajzen, 1991), where subjective norms influence intentions through social pressure and expectations from significant others. Developing a Community-Based Decision Model The decision model developed using the Structural Equation Modeling (SEM) approach shows that collective involvement influences intentions through three main pathways in the Theory of Planned Behavior (TPB): attitude toward behavior, subjective norms, and perceived behavioral control.

- Attitudes toward behavior are shaped by positive experiences within the community, such as testimonials from members who have undergone screening and felt more at ease. This reinforces positive evaluations of early detection measures.
- Subjective norms are reinforced by a community culture that supports preventive measures. When women perceive that early detection is expected by their social environment, they are more likely to follow those norms.

- Perceived behavioral control increases when the community provides access to information and logistical support, such as organizing transportation to health facilities. This reflects their belief in their ability to perform these measures.

This model explains 72% of the variance in women's intention to seek early detection, a very strong indicator in health behavior studies. The highest correlation between social norms and intention ($r = 0.74$) indicates that positive social pressure and community support are key in encouraging preventive action. This finding can also be linked to the Diffusion of Innovations theory (Putri et al., 2025) in which communities function as agents for the diffusion of new information and norms. When an innovation (in this case, early detection of cervical cancer) is accepted and practiced by community leaders or a core group, its spread to other members is more effective.

Providing Social Intervention Recommendations to Increase Screening Participation

Based on the results and the developed model, recommendations for social interventions focus on strengthening community structures as agents of behavior change. Training community cadres is a key strategy, as they act as opinion leaders and gatekeepers of health information. This aligns with the concept of "community empowerment" in Participatory Action Research theory (Wilding et al., 2025), which emphasizes the importance of active community involvement in designing and implementing interventions. Campaigns based on real-life stories from community members who have been screened can increase empathy and reduce stigma. This approach aligns with Narrative Communication theory. (Azim et al., n.d.) yang menyatakan bahwa cerita Personalized messages are more effective in changing attitudes and behaviors than instructional, persuasive messages. Providing culturally and linguistically relevant local educational media is also crucial for improving health literacy. This supports the principle of "cultural tailoring" in Health Communication theory, where health messages tailored to local values and languages are more easily accepted and understood. Integrating screening into routine Posyandu activities allows early detection to become part of collective habits, rather than simply an individual act. This creates a "social ritual" that reinforces shared norms and commitment to preventive health. The impact of collective engagement on community well-being is also significant. Improved health literacy, social support, and economic efficiency demonstrate that community approaches are not only effective in improving health intentions but also provide long-term benefits to the community as a whole.

The collective engagement-based decision-making model developed in this study proved effective in increasing community intention to undergo early cervical cancer screening. This approach can be a relevant intervention strategy in public health programs, particularly within the Integrated Health Post (Posyandu) environment.

4. Conclusions

Early detection of cervical cancer is a crucial effort in reducing morbidity and mortality among women. Although screening programs such as Pap smears and VIA examinations are available, the level of community participation remains low, particularly in developing countries including Indonesia. This low participation rate is not solely caused by limited access to health services but is also influenced by psychological, social, cultural barriers, and inadequate health literacy. Previous studies indicate that cervical cancer screening behavior is strongly influenced by individual intention, which is shaped by attitudes, subjective norms, and perceived behavioral control, as described in the Theory of Planned Behavior. However, individual-based educational interventions alone are insufficient to significantly improve screening behavior due to persisting emotional barriers, stigma, and restrictive sociocultural norms. In this context, community-based strategies offer a more comprehensive and adaptive approach because they incorporate social support, positive norm development, empowerment,

and collective confidence. Posyandu, as a community-based health structure in Indonesia, has a strategic potential to serve as a facilitator for screening participation through community health workers, peer engagement, and established social networks. The concepts of social capital, environmental support, and collective engagement have been shown to increase knowledge, health literacy, and motivation to participate in screening.

Therefore, improving cervical cancer screening behavior requires more than just the availability of health services—it necessitates a social and community-driven approach that strengthens collective involvement, empowers women, and transforms societal norms surrounding reproductive health. A collaborative community-based strategy is essential to improving screening participation sustainably and equitably.

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