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STRATEGIES AND DETERMINANTS INFLUENCING CERVICAL CANCER SCREENING PARTICIPATION: A NARRATIVE REVIEW OF GLOBAL EVIDENCE

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Abstrak

Kanker serviks masih menjadi penyebab utama morbiditas dan mortalitas pada perempuan di tingkat Global, terutama di negara dengan pendapatan rendah dan menengah. Meskipun metode skrining yang efektif seperti Papsmear dan tes HPV tersedia, namun tingkat partisipasi perempuan untuk skrining masih rendah yang diakibatkan oleh berbagai hambatan sosial, budaya dan sistemik.Penelitian ini bertujuan untuk mengidentifikasi strategi efektif dan factor penentu utama yang memengaruhi partisipasi perempuan dalam skrining kanker serviks di berbagai konteks budaya dan geografis. Metode penelitian dengan sintesis naratif terhadap 12 artikel yag telah direview yang diterbitkan antara tahun 2018 sampai dengan 2025. Artikel dipilih berdasarkan relevansinya dengan skrining kanker skrining, termasuk uji klinis terkontrol acak, survei transversal, tinjauan sistematis dan meta analisis. Tema-tema

Kata Kunci: Skrining Kanker Serviks, Pendidikan Kesehatan

Abstract

Cervical cancer remains a leading cause of morbidity and mortality among women worldwide, particularly in low- and middle-income countries. Despite the availability of effective screening methods such as Pap smear and HPV testing, participation rates remain suboptimal due to various social, cultural, and systemic barriers. This study aims to identify effective strategies and key determinants influencing women's participation in cervical cancer screening across diverse cultural and geographical contexts. A narrative synthesis of 12 peer-reviewed articles published between 2018 and 2025 was conducted. Articles were selected based on relevance to cervical cancer screening, including randomized controlled trials, cross-sectional surveys, systematic reviews, and meta-analyses. Key themes were extracted and analyzed for trends, effectiveness of interventions, and associated factors. Educational interventions, including empowerment programs and narrative media approaches, significantly increased screening knowledge and participation ($p < 0.05$). Opt-out invitation systems and community-based outreach campaigns demonstrated higher uptake compared with routine invitations. However, substantial gaps persist, particularly among rural and low-income women, due to limited awareness, fear, and cultural stigma. Factors such as education, income, age, parity, and contraceptive use were consistently associated with screening participation. The conclusion of this study is that integrated strategies combining education, community empowerment, and opt-out systems effectively enhance cervical cancer screening uptake. Addressing sociocultural and economic barriers through context-specific public health interventions is essential. Further longitudinal studies are needed to evaluate the sustainability of these approaches in improving screening behavior.

Keywords: *Cervical Cancer Screening, Health Education*

INTRODUCTION

One of the global targets in the Sustainable Development Goals (SDGs) is to reduce premature deaths from non-communicable diseases (NCDs) by one-third by 2030. Among the causes of death from non-communicable diseases is cancer (Indonesian Ministry of Health, 2024). Cancer remains a leading cause of death and an obstacle to increasing life expectancy globally. One type of cancer that commonly affects women is cervical cancer. Cervical cancer is a malignancy that originates in the cervix (Sung et al., 2021). Cervical cancer is the third leading cause of death from all cancers worldwide. Cervical cancer accounts for 9% of all cancer deaths. The World Health Organization (WHO) lists cervical cancer as the fourth most common type of cancer affecting women and causing death (The Global Cancer Observatory, 2020). In 2022, there were 662,301 new cases of cervical cancer and 348,874 deaths from this disease worldwide (The Global Cancer Observatory, 2022). It is estimated that by 2045, there will be 909,000 new cases and 514,000 deaths from cervical cancer (WHO, 2024a).

Raising awareness and health education are crucial to addressing this knowledge gap (Khan et al., 2025). Many women delay screening because they are unaware that early detection can save lives. By the time symptoms appear, the cancer has often progressed to an advanced stage and is more difficult to treat. This situation is generally caused by a lack of information and understanding about cervical cancer (Gutusa & Roets, 2023). In addition to low knowledge levels, various social and psychological barriers also play a role. Many women still hold the paradigm that they should only seek medical attention when they are sick. Shame, fear of examination procedures, and limited facilities and trained health personnel are also contributing factors (Indonesian Ministry of Health, 2024).

Research results in several countries show that this problem is universal. For example, a study in India found that although 40.2% of women had basic knowledge about cervical cancer, only 20.3% knew about screening and only 13.2% had ever undergone screening (Taneja et al., 2021). In Malta, 69% of women have undergone screening, but nearly half are unaware of risk factors and many still feel embarrassed or afraid to be examined (Deguara et al., 2021). Similar conditions also occur in Indonesia. Low levels of education and socioeconomic status mean that many women do not have access to adequate information about cervical cancer and the benefits of screening. Women with low levels of education tend to have less understanding of the importance of prevention, while domestic burdens, lack of family support, and low awareness further exacerbate the situation (Sumarmi et al., 2021). The aim of this review is to identify effective interventions and recommendations for enhancing screening participation especially among women of reproductive age.

METHOD

This review is based on 12 provided articles, encompassing empirical studies such as randomized controlled trias (RCTs),

quasi-experimental designs, cross sectional surveys, and meta analyses. Articles were selected for their relevance to cervical cancer screening, knowledge, attitudes and practices. Syntesis was conducted by grouping articles into main themes: 1. educational interventions, 2. invitation strategies and accessibility, 3. Knowledge, attitudes and practices and 4. Risk factors and health models. Findings were analyzed descriptively to identify patterns, similarities and differences across studies.

RESULT AND DISCUSSION

1. Educational interventions to enhance knowledge and participation

   Several articles demonstrate that educational interventions are effective in improving knowledge and screening participation. Anggraini et al (2025) reported that a three weeks empowerment program with six educational sessions significantly increased knowledge and cervical cancer screening participation in Indonesia ($p<0,05$), recommending long term studies. Setiyawati et al. (2022) found that video based educational was more effective than pocket books in improving knowledge, attitudes, and screening intetions ($p<0,05$). Seyrafi et al. (2022) utilized the PEN-3 model in online interventions, significantly enhancing knowledge attitudes and Papsmear behavior ($p<0,05$). Thompson et al. (2019) evaluated fotonovela, radionlovela and digital stories wich significantly improved knowledge about cervical cancer and HPV, though no significant differences in screening intentions were noted. Overall, narrative media based and theoretical model driven interventions, such as PEN-3, prove effevtive, particullary in populations with limited acces.
2. Invitation strategies and screening accessibility

   Invitations strategies play a crucial role in boosting participation. Wong&Wong (2024) in meta analysis found that opt-out strategies were more effective than opt-in or control groups (OR 3,91, 95% Ci 1.82-8.42), with HPV self sampling increasing participation (OR 3.43, 95% CI 1.59-7.38). Huchko at al. (2020) showed that community health campaigns (CHCs) in Kenya increased HPV screening participation to 60% compared to health facilities (37%, $p<0,001$), although treatment uptake was low. These findings emphasize the importance of community based approaches and self sampling to overcome acces barriers in rural areas.
3. Women's knowledge, attitudes and practices toward screening

   Cross sectional surveys reveal gaps in knowledge and practices. Deguara etal. (2021) in Malta found that knowledge of risk factors and symptoms was higher among highly educated women ($p<0,001$), with 69% undergoing routine screening, yet reasons for non-attenndance included embrassment and fear. Taneja et.al (2021) in review from India reported general knowledge of cervical cancer at only 40,22%, with low screening practices (13.22%). Bulamba et al. (2025) in Uganda indicated a 33.4% screening participation rate, with high knowledge associated with increased participation (aPR 3.29, 95% CI 2.35–4.60). Khan et

al. (2025) in Pakistan found poor knowledge in 84.7% of respondents, with a preference for social media for education. Generally, low knowledge correlates with low participation, and health campaigns are needed to address stigma and fear.

4. Risk factors and health models influencing participation

   Demographic and health factors affect participation. Zin et al. (2023) in Malaysia found an HPV infection prevalence of 8.4%, with higher risks among women aged 30–39, multiparous (≥5 births), and hormonal contraceptive users (AdjOR 7.48, 95% CI 4.07–13.76). Sumarmi et al. (2021) applied the Health Belief Model in Indonesia, showing that health beliefs such as perceived benefits and barriers influenced Pap smear intentions (61% high intention). Factors like education, income, and partner involvement were also significant. These findings highlight the need for targeted screening based on risk factors.

Findings from these articles indicate that educational interventions, especially media-based and theoretically grounded ones, effectively boost knowledge and cervical cancer screening participation. Opt-out strategies and community campaigns are more successful in rural areas, addressing access barriers. However, general knowledge is low in many countries, with stigma and fear as major barriers. Risk factors such as age, parity, and hormonal contraception increase HPV risk, necessitating targeted screening. Differences across studies include cultural variations and health access; for instance, in Indonesia and Pakistan, low education correlates with poor knowledge, while in Malta, participation is higher. Limitations include small sample sizes and cross-sectional designs that do not establish causality. Practical implications involve integrating these interventions into public health programs, focusing on young and rural women.

CONCLUSION

This literature review affirms that a combination of educational interventions, effective invitation strategies, and community-based approaches can enhance cervical cancer screening participation. Low knowledge and risk factors like age and parity remain key challenges. Recommendations for future research include longitudinal studies to assess long-term impacts and evaluations of culturally sensitive interventions in developing countries. In practice, health campaigns via social media and models like PEN-3 or the Health Belief Model are recommended to raise awareness and participation, thereby reducing the cervical cancer burden.

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