

Bridging the Gap: Innovative Solutions to Cervical Cancer Screening Barriers

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Abstract- Most of cervical cancer incidences occur in low- and middle-income nations, where it is the fourth most prevalent sickness among women globally, accounting for 85% of all fatalities. India was the most hit, accounting for 266,000 fatalities and 528,000 new cases globally in 2012. Several key risk factors include multiple pregnancies, early marriage, unprotected sexual activity, HPV infections, smoking, and weakened immunity. Early detection of cancer with screening tests such as the HPV vaccine and Pap smear can drastically reduce mortality rates. Individual illiteracy, social stigma, cultural and religious taboos, constraints in the health-care system, and structural concerns all contribute to the difficulty of successful detection in developing countries. To reduce cervical cancer incidence and death, increase screening rates, and lower the public health cost of this avoidable illness, these barriers must be overcome via education, improved healthcare infrastructure, cultural sensitivity, and supportive legislation.

Index Terms - Cervical cancer, HPV infections, Pap smear, early detection, Cervical Cancer Screening Barriers.

INTRODUCTION

The fourth most common cancer in women worldwide, cervical cancer kills 85% of its victims in low- and middle-income countries. Cervical cancer is one of the most common illnesses among women in underdeveloped nations, accounting for up to 25% of all female cancers. In 2012, there were 528,000 new instances of cervical cancer globally, with India accounting for 123,000 of those. That same year, over 266,000 women died from cervical cancer, with India accounting for 67,000 of those fatalities. Approximately 85% of new cases and 90% of fatalities occur in low-resource regions or among socially and economically disadvantaged people. (Bhatla N et al 2018)

Unprotected intercourse, polygamy, low socioeconomic level, early marriages, insufficient

education, early menstrual cycles, many pregnancies, smoking, co-infections, HPV infections, hormonal changes, and a weaker immune system have all been identified as risk factors for cervical cancer. (Sadia H et al 2022)

HPV types 31, 18, and 16 are sexually transmitted diseases that can cause cervical cancer. The majority of cervical cancer cases, according to research, are caused by carcinogenic human papillomavirus infections. This remains a major worry as the frequency of HPV infection grows. (Burd EM. 2003) The primary cause of many epithelial lesions and malignancies, mostly on cutaneous and mucosal surfaces, is the Human Papillomavirus (HPV). The HPV virus has more than 100 subtypes. Those who have several sexual partners and/or chronic HPV infection are particularly vulnerable to acquiring additional HPV subtypes.

The classification of HPV infection is as follows:

- Non-genital (Cutaneous)
- Mucosal or anogenital
- Epidermodysplasia verruciformis (EV)

Clinical lesions may be visible, although in some situations (latent lesions), viral DNA testing may be required. The majority of HPV infections are latent, with most clinical lesions appearing as warts rather than cancer.

HPV has been associated with cancers of the larynx, oral cavity, lungs, and anogenital area. Subtypes 6 and 11 are considered low risk since they produce low-grade precancerous lesions and genital warts. In contrast, HPV subtypes 16 and 18 are associated with high-grade intraepithelial lesions that have the potential to progress to malignancy. It is critical to highlight that HPV alone does not cause cancer; smoking, folate deficiency, UV radiation exposure,

immunosuppression, and pregnancy all have a role. (Kobayashi K et al 2018)

Importance of Early Detection

This widespread morbidity and death from cervical cancer is entirely unnecessary, not only since the definite cause of cervical cancer is now recognised, but also because the illness takes a long time to develop following first infection with high-risk Human papillomavirus (HPV). Unlike most other forms of cancer, it is avoidable if precursor lesions are identified and treated. Screening can help to minimise the incidence and fatality rate of cervical cancer. The death rate from uterine cervix cancer has decreased considerably in industrialised nations since the introduction and widespread use of cytology-based screening with the Pap smear test, established by George Papanicolaou in the 1950s. In India, there is currently no organised cervical cancer screening programme. (Saslow Det al 2002)

Early detection of cervical cancer (CC) has reduced the disease's mortality and morbidity, and both organised and opportunistic pap smear testing have been demonstrated to reduce CC incidence rates. Cervical cancer can be prevented by effective screening programmes. The basic means of avoiding HPV infection are condom use, sexual education for young people, and the HPV vaccination. (Campaner AB et al 2021)

Cervical screening

Cervical screening is a means of frequently testing women for changes in the cervix cells, with the Papanicolaou test being the most often utilised. Women should be checked for cervical cancer every 5–10 years beginning at age 30. Women living with HIV should be checked every three years beginning at the age of 25. The worldwide plan recommends at least two lifetime screenings, including a high-performance HPV test, by the age of 35 and again at the age of 45. Precancers seldom exhibit symptoms, thus annual cervical cancer screening is essential, even if you have been vaccinated against HPV.

In addition to HPV vaccination, cervical cancer screening plays an increasingly important role in complete prevention and control, particularly for approaches that have showed great clinical efficacy. (Lisy K et al 2016)

Target Groups for Cervical Cancer Screening

Women aged 21 to 65 who have not undergone a hysterectomy should be checked with cytology (Pap smear) every three years. Alternatively, women aged 30 to 65 can extend screening intervals by combining cytology and HPV testing every 5 years. Pap smear screening is advised for all women with cervixes, regardless of sexual history. Women who are immunocompromised or have had a high-grade precancerous cervical lesion, cervical cancer, or diethylstilbestrol exposure in utero are subject to increased screening recommendations.

Cancer screening methods

Cervical screening tests such as LBC (liquid based cytology), PAP smear (conventional cytology), VIA (visual inspection on acetic acid) and HPV (human papillomavirus) testing can detect cervical precancerous lesions in apparently healthy, asymptomatic women.

Barriers to cervical cancer screening

In analysis the Barriers were identified and grouped into five primary categories: Each category reflects a different layer of influence, affecting various demographics in unique ways, yet they are not entirely distinct.

1. Individual/personal level barriers
2. Cultural/traditional and religious barriers
3. Social barriers
4. Health system barriers
5. Structural barriers

1. Individual/personal level barriers

The most common personal or individual barriers to cervical cancer screening are ignorance and false information. Many women may reject doctor visits as pointless in the absence of symptoms because they are unaware of the need and advantages of cervical cancer screening. This misunderstanding is exacerbated by deep-seated worries about the screening results, with a positive result usually interpreted as a death sentence. Furthermore, there are misunderstandings regarding the screening process itself, such as worries of discomfort, potential injury to reproductive organs, and catching infections from screening equipment. A considerable proportion of women are embarrassed by the screening procedure, particularly the pelvic

examination, and are uneasy about being checked by male or younger healthcare professionals.

2. Cultural, Traditional, and Religious Barriers

Cultural, historical, and religious obstacles have a significant influence on cervical cancer screening. These obstacles usually appear as limitations and a general dislike of Western medical techniques. Religious and cultural customs may limit women's access to screening by prescribing what is deemed appropriate for their health. Many nations' cultural viewpoints on women's sexual and reproductive health are veiled in secrecy and taboo, preventing free debate and access to crucial health care. Men's presence in these settings may increase these hurdles, as their disapproval or lack of support may discourage women from seeking screening, reflecting a larger gender dynamic in which male authority trumps female autonomy in health decisions.

Social Barriers

Social barriers have an unbreakable connection to community beliefs and stigma around cervical cancer and its screening. Misconceptions about cervical cancer as a deadly condition, as well as its link to sexual behaviour, can lead to harmful preconceptions about women who seek screening. Women are discouraged from engaging in screening programmes because they are afraid of being judged in the community and being socially isolated. The social barriers underscore the need of community-based interventions that educate and change public beliefs, lowering stigma and creating a more receptive atmosphere for women's health activities.

3. Health system barriers

Cervical cancer screening is severely limited by health-care system barriers, particularly in rural areas where there is a significant shortage of well-equipped healthcare facilities and skilled professionals. This scarcity causes long, costly screening trips, exacerbating the problem of limited operating hours and insufficient privacy at clinics, which further discourage participation. Furthermore, healthcare professionals usually lack the necessary knowledge and abilities in cervical cancer, resulting in worse service quality. Discriminatory attitudes and insufficient communication from healthcare providers undermine women's confidence and prevent them

from seeking screening. Many women are unable to learn about accessible therapies due to organisational flaws such as poor screening standard dissemination and a lack of promotional campaigns.

4. Structural barriers

Structural barriers significantly limit access to cervical cancer screening in several nations, particularly among women living in rural areas. Geographic isolation and the accompanying distance from screening facilities require costly and time-consuming travel, which is sometimes exacerbated by limited transit networks. Structural problems go beyond logistics and include impediments related to low levels of education and socioeconomic status, with women in impoverished communities facing disproportionately greater challenges. (Petersen Z et al 2022)

CONCLUSION

To effectively fight cervical cancer, a leading cause of cancer-related death among women in low- and middle-income countries, it is vital to overcome the multiple screening barriers. Individual misunderstandings and concerns about the disease and its screening, cultural and religious stigmas that limit access, societal misconceptions that lead to ostracism, a lack of health-care system resources, and structural limitations such as geographic and economic constraints are all examples. Comprehensive approaches are necessary to increase educational efforts, build healthcare infrastructure, adapt to cultural sensitivity, and implement supportive legislation. By tackling these challenges holistically, we may be able to enhance cervical cancer screening uptake while also lowering incidence and mortality rates, bringing us closer to a future where this avoidable illness is no longer a major public health concern.

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