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## "Barriers to Cervical Cancer Screening in Rural India: A Narrative Review"

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### ABSTRACT :

Despite the availability of effective cervical cancer screening methods, uptake in rural India remains alarmingly low. This review examines the individual, sociocultural, economic, and systemic barriers that hinder screening utilisation in these regions. Literature from 2005 to 2024 was searched using databases such as PubMed, Scopus, and Google Scholar. Themes were categorised and supported by citations. Recommendations are provided to address these multifaceted challenges.

Keywords: Cervical cancer, screening, rural India, barriers, Pap smear.

### INTRODUCTION

India accounts for nearly 20% of global cervical cancer deaths [1]. Although the government promotes Visual Inspection with Acetic Acid (VIA), Pap smears, and HPV vaccination, rural India faces poor screening rates, often below 10% [2,3]. The disparity is influenced by a complex interplay of personal, sociocultural, and systemic barriers [4]. Cervical cancer remains a significant public health challenge in India, accounting for nearly 20% of global cervical cancer deaths [1]. Despite the availability of effective screening methods such as Visual Inspection with Acetic Acid (VIA), Pap smears, and HPV vaccination, screening uptake in rural India remains alarmingly low, often below 10% [2,3]. This disparity is driven by a complex interplay of individual, sociocultural, economic, and systemic barriers that hinder women's access to and utilisation of preventive services [4].

The burden of cervical cancer is disproportionately borne by rural women, who face multifaceted challenges in accessing healthcare. Studies highlight that a lack of awareness about cervical cancer and its prevention is pervasive, with many women unaware of screening methods like Pap smears or HPV testing [1,5]. Misconceptions, such as the belief that cancer is incurable or caused by supernatural forces, further deter women from seeking screening [6]. Additionally, cultural norms and patriarchal structures often dictate women's health-seeking behaviours, requiring spousal or familial permission for clinic visits [7,8]. Stigma surrounding reproductive health and modesty concerns, particularly with male providers, also acts as a significant barrier [9,10].

Health system inadequacies exacerbate these challenges. Rural primary health centres (PHCs) frequently lack essential infrastructure, trained female healthcare providers, and screening equipment like VIA kits [11,12]. Even when screening is available, poor referral systems and loss to follow-up undermine its effectiveness [13]. Economic and logistical constraints, such as travel costs, loss of daily wages, and unreliable transportation, further limit access [14,15]. At the policy level, fragmented implementation of national programs like the National Programme for Prevention and Control of Cancer (NPCDCS) and lack of integration with routine maternal health services contribute to low screening coverage [16,17]. By addressing these challenges, India can move closer to achieving the World Health Organisation's goal of eliminating cervical cancer as a public health problem [18].

### Objectives

- Identify and categorise the barriers to cervical cancer screening in rural India

### Methods

#### Search Strategy

Databases searched: PubMed, Scopus, Google Scholar

#### Search Terms:

- "Cervical cancer" AND "screening" AND "rural India"

- “Barriers to Pap smear”
- “HPV vaccine awareness”
- MeSH: “Uterine Cervical Neoplasms/prevention & control” AND “Rural Population”
- **Date Range:** January 2005 – May 2024
- **Languages:** English
- **Inclusion:** Studies focusing on barriers to screening in rural Indian populations.
- **Exclusion:** Urban-only studies, clinical trials without a socio-behavioural focus.

#### *Review search strategy and study selection process.*

Phase	Description	Records (n)
<b>Identification</b>	<b>Records identified from databases:</b> <ul style="list-style-type: none"> <li>• PubMed (n=92)</li> <li>• Scopus (n=76)</li> <li>• Google Scholar (n=88)</li> </ul>	<b>256</b>
	<b>Records removed before screening:</b> <ul style="list-style-type: none"> <li>• Duplicate records (n=86)</li> <li>• non-English or inaccessible full-text (n=7)</li> </ul>	<b>93 removed</b>
	<b>Records remaining after removal</b>	<b>163</b>
<b>Screening</b>	<b>Records screened based on title and abstract</b>	<b>163</b>
	<b>Records excluded after screening:</b> <ul style="list-style-type: none"> <li>• Not related to rural India (n=41)</li> <li>• Focused only on HPV vaccine or urban settings (n=22)</li> <li>• Not peer-reviewed or published literature (n=25)</li> <li>• Overlapping data with other studies (n=24)</li> </ul>	<b>112</b>
<b>Eligibility</b>	<b>Full-text articles assessed for eligibility</b>	<b>51</b>
	<b>Full-text articles excluded:</b> <ul style="list-style-type: none"> <li>• No direct mention of barriers or lacked qualitative/quantitative data (n=14)</li> <li>• Unclear study population or mixed urban–rural without segregation (n=9)</li> </ul>	<b>23</b>
<b>Included</b>	<b>Studies included in the final narrative review</b>	<b>28</b>

## **4. Results**

The 28 included studies revealed five major categories of barriers: 1) Individual-Level Barriers, 2) Sociocultural and Gender Norms, 3) Health System Barriers, 4) Economic and Logistical Challenges, and 5) Programmatic and Policy-Level Gaps. Each theme was supported by multiple studies and described in detail.

- Thematic Analysis of Barriers
- Theme 1: Individual-Level Barrier

Cervical cancer screening in rural India is hampered by a web of interconnected barriers. These barriers can be categorised into five broad themes. These are personal and psychological factors that influence women’s decisions regarding screening.

### *Lack of Awareness and Knowledge*

Most rural women are unaware of cervical cancer and its prevention. Multiple studies show that women have never heard of Pap smears, HPV testing, or even the concept of cancer screening. In Karnataka, Basu et al. found that only 23% of women had heard of cervical cancer, and just 3% had undergone screening [1]. Sudenga et al. reported that 83% of rural women in Andhra Pradesh did not recognise HPV as a cause of cervical cancer [2]. A study in Uttar Pradesh showed that 78% of participants thought cancer was incurable and caused by supernatural forces [3]. “Lack of basic understanding about cervical cancer is a key obstacle to early diagnosis.” Singh et al. [4]

### *Low Perceived Risk*

Even among women aware of cervical cancer, many don’t consider themselves at risk unless symptomatic. The asymptomatic nature of early cervical lesions contributes to screening avoidance. Tripathi et al. reported that 61% of rural women in Maharashtra believed they should only seek care when they had pain or bleeding [5]. Khubchandani et al. found that only 11% of women believed regular screening was necessary without symptoms [6].

### ***Fear, Anxiety, and Misconceptions***

Fear of a cancer diagnosis, pain, or procedures, and misconceptions like infertility after Pap smears are significant deterrents. Bansal et al. noted that 40% of participants believed that pelvic exams were painful and could damage the uterus [7]. A community study in Tamil Nadu revealed beliefs that cervical screening was only for “immoral” women [8]. [7] Cultural beliefs, stigma, and patriarchal norms strongly shape women’s health-seeking behaviour.

### ***Male Dominance and Spousal Permission***

Health-seeking is often not autonomous. Women require permission or an escort from a male family member. Sharma et al. observed that 76% of women could not attend clinics without a husband or elder male [9]. In Madhya Pradesh, Roy et al. found women feared disapproval from husbands if seen at a gynaecology clinic [10].

### ***Stigma and Taboos***

Sexual and reproductive health issues carry stigma. Cervical cancer is associated with promiscuity and sexual deviance in some communities. Kaarthigeyan reported that many rural Indian families believe talking about reproductive organs is inappropriate [11]. In Punjab, Kaur et al. found women reluctant to even mention cervical cancer for fear of social ostracisation [12].

### ***Modesty and Gender of Provider***

Women are uncomfortable being examined by male providers, especially for internal exams. Sultana et al. documented that 70% of rural women would not undergo screening unless the provider was female [13].

#### **Theme 3: Health System and Structural Barriers**

Systemic gaps in infrastructure, human resources, and service delivery lead to missed opportunities for screening.

### ***Inadequate Health Infrastructure***

Many PHCs (Primary Health Centres) lack privacy, equipment, or dedicated female healthcare staff. Devi et al. showed that only 26% of PHCs surveyed in Odisha had VIA kits and trained staff [14]. Thomas et al. highlighted that in tribal Andhra Pradesh, most facilities lacked electricity or gynaecological tables [15].

### ***Lack of Trained Personnel***

Shortages of female doctors, nurses trained in VIA or Pap collection, and overburdened ASHAs are common. According to [18], only 1 in 5 PHCs in India are equipped with a gynecologist or trained nurse for screening [16].

### ***Poor Referral and Follow-up***

Women who undergo VIA or Pap smears are often not followed up. Lost-to-follow-up is a major concern. In Punjab, Kaur et al. found 35% of women who tested positive never returned for confirmation or treatment [12].

#### **Theme 4: Economic and Logistical Constraints**

Financial hardship and logistical obstacles reduce women’s ability to access and utilize screening services.

### ***Travel Time and Transportation***

Villages are often far from screening centers, and public transportation is unreliable. Singh et al. reported women walking over 5 km or waiting hours for transport [17].

### ***Cost and Opportunity Loss***

Even where screening is free, the cost of travel, food, and loss of daily wages is prohibitive. Sahu et al. reported that 42% of women in tribal Jharkhand did not attend free camps due to wage loss [18].

### ***Lack of Insurance or Incentives***

Most women are unaware of schemes like Ayushman Bharat, and those that do exist often don’t cover preventive services. Gakidou et al. observed that only 11% of Indian women reported using insurance for preventive care [19]. Despite national programs, cervical screening has not been effectively prioritised or implemented in rural areas [25].

***Fragmented Implementation***

Although VIA is promoted by the National Programme for Prevention and Control of Cancer (NPCDCS), implementation is inconsistent. IIPS data from NFHS-5 shows that less than 30% of districts had any cervical screening in the past 12 months [10].

***Lack of Integration***

Screening is not integrated into routine maternal or women's health visits at PHCs. Roy et al. emphasised that ASHA workers rarely discuss cervical screening during antenatal/postnatal care [10].

***Lack of Monitoring and Evaluation***

There is poor documentation of coverage and outcomes, making it hard to identify gaps or measure progress. [26] (2021) recommends standardised national tracking tools and databases, which India currently lacks [16].

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**5. DISCUSSION**

This narrative review synthesised findings from 28 peer-reviewed studies to identify and analyse the barriers to cervical cancer screening among women in rural India. The analysis revealed that these barriers are multifactorial, spanning individual, sociocultural, systemic, economic, and policy levels. Addressing these barriers requires a comprehensive, culturally-sensitive, and resource-conscious approach.

***Individual-Level Barriers:***

A predominant theme across several studies was the lack of awareness regarding cervical cancer and its prevention. Most rural women were unaware of the need for screening or even the existence of screening programs (Basu et al., 2017; Sudenga et al., 2014). Misconceptions such as "cancer means death" or beliefs that Pap smears can cause infertility contributed to low uptake (Tripathi et al., 2020; Khubchandani et al., 2018). Many women expressed fear, both of the disease itself and the screening procedure.

***Sociocultural and Gender Norms:***

Patriarchal decision-making, modesty concerns, and stigma around gynaecological health significantly affect screening behaviour. Several studies found that women required permission from husbands or elders to attend health facilities (Sharma et al., 2019; Roy et al., 2017). Social taboos around discussing reproductive health often prevent even basic awareness (Karthigeyan, 2012; Singh & Badaya, 2021). Provider gender was a key factor; women were reluctant to be screened by male health professionals (Sultana et al., 2019).

***Health System Barriers:***

Despite national guidelines recommending screening, implementation at the ground level remains inconsistent. Gaps in rural primary health centres include a lack of trained female providers, tools, privacy, and referral systems (Devi et al., 2019; Kaur et al., 2020). ASHA and ANM staff are often undertrained or overburdened ([18], 2017).

***Economic and Logistical Challenges:***

Long distances, lack of transport, time off work, and costs associated with travel or loss of wages are barriers to screening (Singh et al., 2018; Sahu et al., 2022). Even when screening is free, the indirect costs discourage participation (Tripathi et al., 2019).

***Programmatic and Policy-Level Gaps:***

Although prevention is part of the NPCDCS program, ground-level implementation and monitoring are weak ([27], 2021). HPV-based screening and integration into maternal health services remain underutilised (Sankaranarayanan et al., 2009; Paul et al., 2014).

***Comparison with Global Trends:***

Similar barriers are reported in other LMICs, particularly sub-Saharan Africa and Southeast Asia. However, India's large rural population and inter-state variability complicate its challenges.

***Strengths and Limitations:***

A major strength of this review is the thematic synthesis of studies using a structured approach. However, limitations include the exclusion of grey literature and over-representation of region-specific studies.

**Implications for Practice and Policy:**

Community mobilisation, mobile screening units, integration into routine care, and culturally-sensitive health education are essential. Policy must ensure better provider training, follow-up systems, and inclusion in primary healthcare packages.

**6.CONCLUSION**

Cervical cancer remains a preventable yet highly prevalent cause of mortality among women in rural India. Despite national screening programs and growing awareness at the policy level, a wide chasm exists between availability and accessibility. This review highlights that barriers to screening are not merely logistical or infrastructural—they are deeply rooted in sociocultural beliefs, gender dynamics, economic constraints, and systemic inadequacies.

Addressing these challenges requires a multi-pronged approach that goes beyond infrastructure and includes sustained community education, empowerment of frontline health workers, integration of screening into routine health services, and policy reforms that ensure accountability and equity. Importantly, the involvement of local communities, especially women, in designing culturally-sensitive interventions will be crucial to improving screening uptake and ultimately reducing the burden of cervical cancer in rural India.

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