

A REVIEW ON AWARENESS AND BARRIERS FOR SCREENING OF CERVICAL CANCER WITH SPECIAL REFERENCE TO RURAL WOMEN IN INDIA

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ABSTRACT

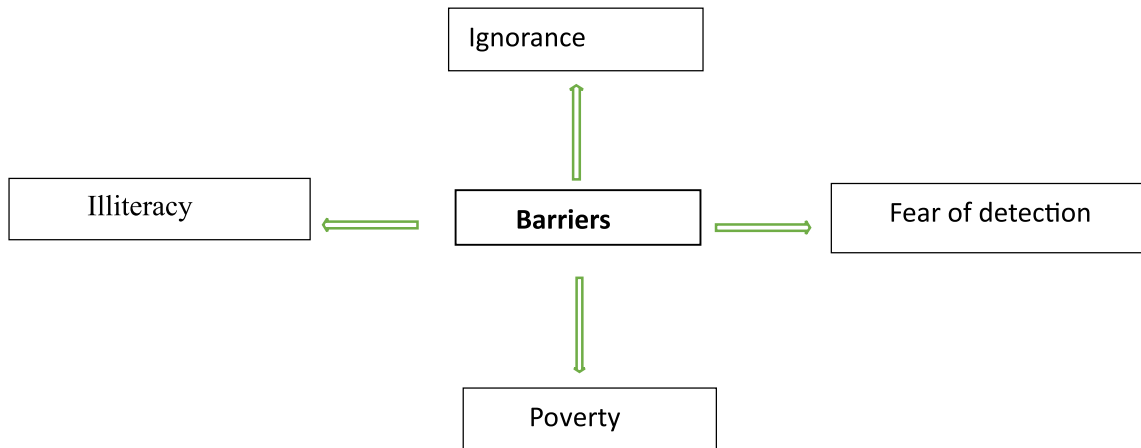
Background- Cervical Cancer is the second most common cancer among women in India, which contributes to one-fifth of the global burden. Lack of awareness of screening methods, risk factors and government policies are more in rural areas. To prevent and control this disease, women need to be more informed of primary and secondary preventive strategies, as well as have access to counselling and treatment options. The study aims to identify the effective barrier associated with cervical cancer screening and aid to adopt effective measures to overcome prevailing barriers among rural women in India. Currently available literature was reviewed regarding barriers for screening and prevention strategies of Cervical Cancer in India including various national programmes and other initiatives on the part of government and non-governmental organizations. This review demonstrated the ignorance of Indian women about the susceptibility of cervical cancer and the importance of screening for the disease. The most significant barriers to screening were inadequate public health education, a lack of patient-friendly healthcare facilities, sociocultural health attitudes, personal challenges, and a lack of government policies. In order to control the Cervical Cancer morbidity and mortality rate in India, policies regarding accessibility, affordability, cancer education, and the importance of screening must be improved. This will enhance screening awareness.

KEYWORDS- Cervical cancer, Rural women, Barriers, Policies.

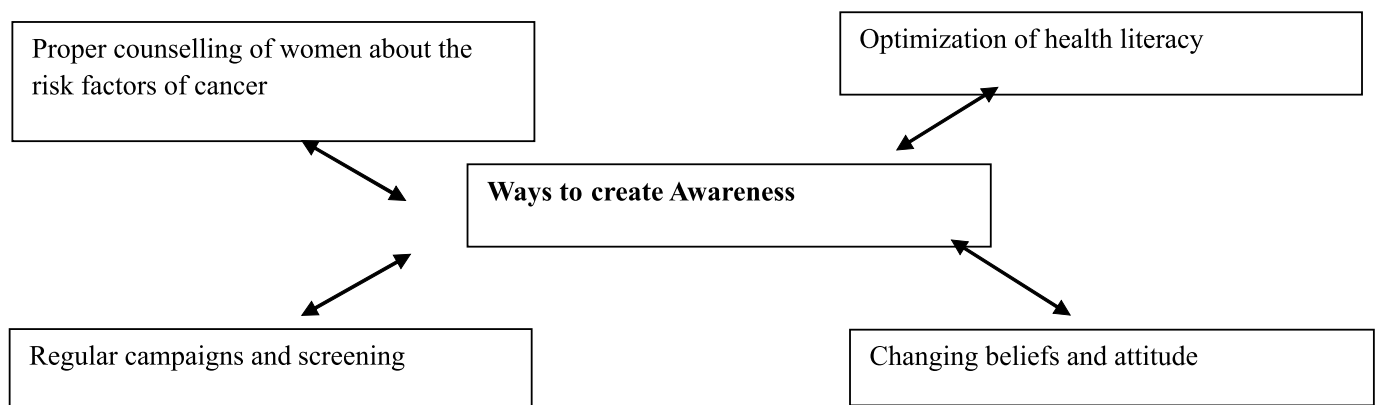
INTRODUCTION

Cervical cancer is a major global health burden on women. Cervical cancer is the second leading cause of cancer-related deaths among women in developing nations such as India, despite the fact that incidence rates have significantly decreased in developed countries since the 1940s as cytology-based screening programs were introduced. [1]. In 2020, Globocancer estimated 123,907 incident cases and 77,348 deaths, with an age-standardized incidence rate of 18 per 100,000 women and a cumulative risk of 2.01% [2]. The 5-year relative survival rate of approximately 46% (range 34–60%) is much lower than that of other Asian countries [3]. This is because over 80% of cases of cervical cancer are identified at an advanced stage, resulting to a high death rate[4]. Cervical cancer is diagnosed in more than 120,000 females in India, of which 67,000 die from the disease every year and this represents cases which are recorded because these women may have sought medical attention, but the statistics must be horrifying if we take into account remote places where people lack access to basic investigations[5]. In

the world, about 25% of all cervical cancer deaths occur in India where the incidence is very high among women in rural areas and low socio-economic status [6]. The most common cause of a higher rate of mortality due to cervical cancer in India is lack of awareness about its symptoms, risk factors, screening programs, and preventive measures. The most common symptoms of cervical cancer are abdominal pain, before and after intercourse bleeding, persistent back pain, urinary urgency, white vaginal discharge, smelly vagina, etc. [7]. Infection with human papillomavirus (HPV) is the most important risk factor associated with cervical cancer. HPV is very common worldwide and primarily transmitted through sexual contact in both males and females [8]. The relationship between HPV and cervical cancer is well studied and 70% of cervical cancer cases are associated with HPV infection. Additional risk factors include multiple sexual partners, pregnancy at early age, early sexual intercourse, prolonged use of oral contraceptive pills, multi-parity, multiple abortions, and smoking [9] (Fig. 1.)



Cervical cancer is primarily caused by HPV infection; however, vaccination against HPV vaccine offers protection against cervical cancer. Early detection and treatment of cervical cancer will help in reducing the number of deaths. Most studies have also shown that the survival rate of a person is improved if cervical cancer is diagnosed and treated at earlier stages [10]. But in India, most cases are diagnosed at last stages which reduce the survival rate. The main reason for late-stage diagnosis of the cancer is a lack of awareness and availability of screening methods. The main reason for late-stage diagnosis of the cancer is a lack of awareness and availability of screening methods. In developed countries, regular screening programs such as Papanicolaou (Pap) smear, visual inspection of the cervix with acetic acid (VIA), and HPV DNA test for precancerous lesions reduced the incidence and mortality of cervical cancer, but in developing countries, cervical cancer screening and prevention programs have failed to meet their objectives due to financial, social, and logistical problems [11]. Unfortunately, in India, implementation of screening programs for cervical cancer is still not possible due to lack of awareness and misconceptions about gynaecological diseases, and lack of national cervical cancer screening programs [12]. Therefore, there is a great need for a nationwide government sponsored public health policy on the prevention of cervical cancer by early diagnosis, vaccination or both. Women are less likely to enrol in screening programs if they have not enough knowledge about cervical cancer, early detection, and prevention. In the present review, an attempt has been made to identify the different barriers which are obstacles to the rural cervical cancer screening, factors influencing the awareness and ways to create awareness of the disease among rural women (Fig. 2.).



Different strategies to control cervical cancer in rural areas such as rural cancer registries and camp approach have been discussed, and different diagnostic methods applicable to low resource settings have been discussed for mass rural cervical cancer screening in India.

EPIDEMIOLOGY OF CERVICAL CANCER

Cervical cancer's natural history is extensively constructed. Cervical cancer is usually caused by persistent infection with high-risk (oncogenic) types of human papillomavirus (hrHPV). Several co-factors, such as early age at coitarche, multiple

sexual partners (self or spouse), multiple pregnancies, associated STDs, etc., facilitate the initiation and progression of the infection.

There are around 100 different varieties of tiny double-stranded DNA viruses that make up the HPV family. Worldwide, more than 70% of invasive cervical cancer are caused by HPV 16 and 18. More than 80% of cervical cancer cases and 63% of high-grade lesions in India are associated with HPV 16 and 18 infections, which is higher than the global norm [13]. All preventive HPV vaccinations contain one of these two types of vaccines. The pre-invasive stage of cervical cancer is prolonged, lasting ten to fifteen years. This provides a window of opportunity for early cancer identification as well as the detection and treatment of neoplasia in pre-invasive stages using simple outpatient treatment techniques. The prevalence and death rate from the disease are a direct result of the resources and facilities that are that exist in the healthcare sector for screening and treating the entire population

WHO CALL FOR ELIMINATION OF CERVICAL CANCER

The World Health Organization (WHO) called for the broad HPV vaccination program, screening, early detection of cervical cancer, and treatment of cervical precancerous lesions and cancer in May 2018 in order to eradicate cervical cancer as a public health concern. The World Health Assembly (WHA) formally revealed a global implementation strategy on November 17, 2020 [14].

The elimination programme aims to achieve the following targets by 2030:

1. 90% girls fully vaccinated by 15 years of age with two doses of HPV vaccine.
2. 70% women screened with a high-performance test at 35 and 45 years of age.
3. 90% of women with cervical pre-cancer and cancer receive treatment to achieve a goal of less than four cases per 100,000 women.

The United Nations' Sustainable Development Goals for 2030 aim to reduce the premature mortality from non-communicable diseases by one-third through prevention and treatment. Achieving the elimination targets will help to achieve this goal as well.

RISK FACTORS CONTRIBUTING TO CERVICAL CANCER

Human papillomaviruses (HPVs) are widely implicated with the development of cervical cancer [15]. Other risk factors such as early age of marriage, multiple sexual partners, multiple pregnancies, poor genital hygiene and lack of awareness, may be involved in modifying the risk of developing cervical cancer in women. The worldwide prevalence of HPV infection is high (9-13%) and is the most common sexually transmitted infection, with no specific treatment [16]. Precursors of cervical cancer can be easily identified and effectively treated at an early stage with the use of the cervical smear, Pap test, or VIA, or application of efficient HPV-DNA detection technologies. Therefore, regular screening programs can readily prevent cervical cancer.

Different screening programmes for cervical cancer are as follows:

National Cancer Control Programme (NCCP)

1976 marked the launch of the National Cancer Control Programme (NCCP). The main goal was to prevent cancer by health education; the secondary goals were to prevent cervical, mouth, and breast cancers by screening, to improve the current cancer treatment facilities, and to provide palliative care to patients who were approaching the end of their lives. NCCP integrated with National Programme for Prevention and Control of Diabetes, Cardiovascular Diseases and Stroke (NPDCS) in 2010. The review of initial phase of programme helped in identifying the bottlenecks and accordingly the programme was re-strategized and scaled-up.

The programme strategy implemented at various levels is as follows:

(1) Primary level

- Door to door information, education and communication (IEC) by Accredited Social Health Activists (ASHA) or ASHA workers.
- Monthly visits by medical officer (MO) to subcentre to monitor ASHA's work and record keeping.
- Utilization of laboratory technician and health workers for screening with cytology/HPV at primary health centres (PHCs).

(2) Secondary level

- Provision of gynaecologist trained in colposcopy at community health centre (CHC) level.
- And a pathologist for district level monitoring and data

recording.

(3) Tertiary level

- Improving training in Regional Cancer Centres (RCC) and training institutes.

National Cancer Registry Programme (NRCPP)

The National Cancer Registry Programme (NRCPP) was initiated in 1982 by the Indian Council of Medical Research (ICMR). It provides a picture of the magnitude and patterns of cancer. The cancer registries are either population-based or hospital-based and provide data to ICMR on a regular basis. This activity not only increased the cancer awareness among the villagers but also the frequency of early detection and significantly decreased the deaths due to cervical cancer [17]. Even one screening round is more beneficial than none at all in lowering the incidence and mortality from cervical cancer [18]. The prevalence is higher in rural areas where most women experience socioeconomic deprivation, with no formal education and no awareness of the risk factors associated with development of the disease

Different screening strategies used to reduce the incidence of disease especially among rural population:

• **Rural cancer registries**

In Barshi, Maharashtra, the first rural cancer registry was established in 1987 to include the town's rural surroundings. The last few decades have seen the establishment of the following rural cancer registries:

- (1) A rural registry covering Ahmadabad rural district, Gujarat, was established in 2007.
- (2) Under Tata Memorial Centre, Mumbai, a rural population-based cancer registry was started in 2009 at Dervan covering entire Ratnagiri district population.
- (3) During 2010, a rural population-based cancer registry was started at Sevagram, Maharashtra.
- (4) Another rural cancer registry was set up in Sindbuderg district in the Konkan area of Maharashtra in April 2011.

• **Screening Camps**

Useful for the women who actively participated in the screening programme. It did not, however, translate into active community participation. The apprehension to undergo internal examination during screening test leads to poor acceptance and participation [19].

• **Village Health Nurses (VHNs)**

VHNs participated in a screening program for non-communicable diseases (NCDs) after receiving training from

the Tamil Nadu Health Services Project for cervical cancer screening. The experiment demonstrated the feasibility and effectiveness of employing qualified healthcare personnel for screening. [20].

Screening Modalities

Several screening methods, such as cytology, co-testing (HPV + cytology), primary HPV testing, and visual inspection with acetic acid, are being utilized in various settings depending on the availability of resources and compliance.

• **Visual Inspection with Acetic Acid (VIA)**

VIA has been implemented in rural areas taking into consideration the lack of facilities for cytology. Studies on efficacy of VIA have shown that it reduces the mortality due to cervical cancer [21]. The Federation of Obstetricians and Gynaecologists of India (FOGSI) also recommends VIA as the test of choice in limited resource settings [22].

• **Cytological screening**

The main advantage of cytological screening is that it permits to detect the disease in its pre-invasive phase which can be easily treated. Cytological screening has been found to reduce the incidence of cervical cancer by 80 per cent [23].

HPV vaccination

HPV vaccination can make major breakthrough in the control of cancer cervix in India [24]. The country's HPV vaccination status demonstrated that, despite efforts to reduce vaccine costs and incorporate HPV vaccination into the National Immunization Programme, issues including the vaccine's duration, acceptance in India, and insufficient epidemiological data for disease prioritization appeared to be significant obstacles [25].

IMPLEMENTATION OF HPV VACCINATION PROGRAMME IN INDIA

Delhi was the first state in India to implement HPV vaccination for school girls aged 11-13 in 2016 [26]. After this, the Government of Punjab developed operational guidelines for implementing HPV vaccination through health facilities with technical inputs of ICMR, WHO, and UNICEF. They adopted a campaign mode in two districts with the highest burden: Bathinda (incidence 17.5 per 100,000) and Mansa (17.3 per 100,000). Phase 1 started in November 2016, vaccination coverage was excellent and 98% (9672/9922) of the target population completed two doses in government and government-aided schools. Upon

completion of phase 2 in November 2017, first dose was received by 94% (15,140/16,106) eligible girls and 99% (14,988 /15,140) received the second dose [26]. And Sikkim was the first state to completely vaccinate girls aged 9-14 years in the entire state in 2018 with minor side effects of vaccine[27].

METHODOLOGY

The study is a review of literature, which allows for comprehensive evaluation. We anticipate that the Narrative review will come across a wider variety of papers and a large number of studies in which barriers for screening of cervical cancer in rural women in India has been studied. The main approaches employed in the research procedure were the describing of the aim, inclusion and exclusion criteria, selection of publications using specified databases, and an in-depth search for study papers.

Electronic searches were performed using databases from Med line, Google Scholar, PubMed and Springer using keywords: Cervical cancer, Rural women, Barriers, Policies. In order to be eligible for this study, the articles had to meet some of the following inclusion and exclusion criteria:

1. Inclusion criteria-

The articles had to inform about the awareness and barriers of screening of cervical cancer among rural women in India. Furthermore, we only included scholarly publications and research that were published in English.

2. Exclusion criteria-

For the exclusion criteria following elements were used: papers that were not identified as journal articles (e.g., books, book reviews/chapter), gray literature (e.g., conference, magazines) because they are considered less relevant and do not undergo peer review process, which reduces the reliability of the study, studies that did not have a clear abstract or uncertain conclusion, articles not written in English, and articles that did not correspond with the research.

RESULT AND DISCUSSION

Current situation in India- In India, cervical cancer is the leading cause of cancer mortality and the second most common cause of cancer deaths among women of reproductive age. Currently no national cervical cancer programme exists in India. Capacity for pap smear cytology is available only at selective laboratories in urban India. So, there is a need of more laboratories for screening of

symptomatic as well as asymptomatic women amongst rural Indian population.

Sociodemographic characteristics- Early marriages and illiteracy in rural areas is one of the causes of spread of cervical cancer among rural women in India.

Cervical Cancer Knowledge and Its Screening- Lack of awareness of cervical cancer and knowledge of its screening and unwilling to go for cytological screening is the leading barrier of cervical cancer among rural women in India.

Knowledge of Cervical Cancer Symptoms- Lack of knowledge of cervical cancer symptoms such as pain and bleeding during or after sexual activity, painful and irregular menstruation, discomfort during urination, and pain in pelvis etc. leading to misguide them and proves to be a barrier in early detection of cancer among rural women.

Knowledge About Risk Factors- Knowledge about cervical cancer risk factors in women is less in rural areas.

Policy- National policies such as National Cancer Control Programme is addressing the problem of public health on a population level. This programme has mainly focused on maintaining two cancer registries: population based and hospital based. But there is still a need to strengthen the existing cancer registries in rural India to better monitor cervical cancer rates and trends.

Health System Issues- An effective health care system plays a key component to any population-based screening programme. Despite recent efforts, implementations of quality health care and policies, delivery of efficient health care remains an issue. The Indian government lacks a single, coherent approach in addressing standardized guidelines for health services across the rural India.

Hence, cervical cancer is one of the most frequent malignancies in women worldwide, accounting for 17% of all cancer deaths in women between 30 and 69 years of age[28]. Cervical cancer is curable and preventive if detected early; but, in India, it still results in over 67,477 deaths annually, primarily as a result of ignorance, screening programs and intervention approaches. Therefore, this study sheds light on the current awareness level about cervical cancer, barriers, screening and risk factors in rural areas of India.

CONCLUSION

Introduction of non-cytological screening by HPV test and VIA has brought a paradigm shift in the cervical cancer screening. But in spite of this there is screening of cervical

cancer is still required as millions of women are exposed to virus in rural setting. Hence, this study concluded that illiteracy, lack of awareness, health facilities, poverty, cultural barriers and less government policies for rural areas are the main barriers for screening of cervical cancer among rural women in India.

FUTURE PROSPECTS

Partnerships between the public and private sectors involving international organizations like the WHO and professional associations like The Federation of Obstetricians and Gynaecologists of India (FOGSI), Indian Society of Colposcopy and Cervical Pathology (ISCCP), and Asia-Oceania Research Organization in Genital Infection and Neoplasia (AOGIN)-India, in conjunction with corporates as part of their social responsibility commitments, should be utilized by India in its efforts to control cervical cancer. The World Health Organization has advised two rounds of HPV testing by the ages of 35 and 45. In the rural area where prevention efforts have had a set-back more government policies and campaigns for screening of cervical cancer in rural women can be ideal.

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