

The Role of Gynecology Nurses in Promoting Cervical Cancer Screening Awareness and Uptake in Pakistan: A Narrative Review

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Abstract

Introduction: Cervical cancer remains a major yet largely preventable health concern among women in Pakistan, where prevention is hindered by low awareness, sociocultural stigma, fear of gynecological examination, limited access to screening services, and a shortage of female healthcare providers. **Objective:** This narrative review synthesizes available evidence on cervical cancer screening awareness and uptake in Pakistan and explores how gynecology nurses can support prevention through education, counseling, community outreach, screening facilitation, referral guidance, and follow-up care. **Methods:** A structured narrative literature search was conducted using PubMed/MEDLINE, Scopus, CINAHL, Web of Science, Google Scholar, and relevant organizational reports, prioritizing literature published between 2015 and 2025. Following screening and eligibility assessment, 40 sources were included in the final narrative synthesis. **Results:** The reviewed evidence indicates that screening uptake in Pakistan is limited by inadequate knowledge, low perceived risk, embarrassment, stigma, cost, transportation difficulties, weak preventive health infrastructure, and the absence of organized screening pathways. Findings from Pakistan and comparable low-resource settings suggest that gynecology nurses are well positioned to improve screening awareness and access by providing culturally sensitive education, building trust, guiding women through available services, and supporting timely referral and follow-up. **Conclusion:** Strengthening the role of gynecology nurses through structured training, institutional protocols, and community-based outreach may improve cervical cancer screening awareness and support women's access to preventive care in Pakistan.

Keywords:

Cervical Cancer, Cervical Cancer Screening, Gynecology Nurses, HPV, Pap Smear



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INTRODUCTION

Persistent infection with oncogenic human papillomavirus (HPV) is the central causal pathway in cervical carcinogenesis, and HPV-based testing is an important component of prevention because it can identify women at increased risk before invasive disease develops (Bosch et al., 2013; Schiffman et al., 2011; World Health Organization [WHO], 2024). Global cancer estimates show that cervical cancer continues to rank among the leading causes of cancer incidence and cancer-related death among women, particularly in low- and middle-income countries where access to HPV vaccination, screening, and treatment remains limited (Arbyn et al., 2020; Sung et al., 2021; WHO, 2020). The World Health Organization has established a global strategy for cervical cancer elimination, including the 90–70–90 targets: 90% of girls vaccinated against HPV by age 15 years, 70% of women screened with a high-performance test by ages 35 and 45 years, and 90% of women with cervical disease receiving appropriate treatment (WHO, 2020). Achieving these targets requires not only medical infrastructure but also community-level awareness, culturally appropriate education, and strong participation from frontline healthcare workers.

The burden of cervical cancer is unequally distributed. High-income countries have achieved reductions in cervical cancer incidence and mortality through organized screening programs, HPV vaccination, recall systems, and timely management of precancerous lesions (Fontham et al., 2020; Perkins et al., 2020; Smith et al., 2019). In contrast, many low- and middle-income countries continue to experience late diagnosis, poor screening coverage, weak referral pathways, and limited public knowledge about cervical cancer prevention (Brisson et al., 2020; Canfell et al., 2020; Gakidou et al., 2008; Shrestha et al., 2018; Simms et al., 2019). In these settings, women may seek healthcare only after symptoms appear, reducing opportunities for early detection and prevention.

Pakistan faces a significant gap in cervical cancer prevention. Although cervical cancer is preventable through HPV vaccination and screening, awareness of Pap smear testing, HPV infection, and cervical cancer risk factors remains limited among many Pakistani women (Batool et al., 2017; Hirani et al., 2021; Imam et al., 2008; Khan et al., 2025; Riaz et al., 2020; Shahnaz et al., 2023; Shamaun et al., 2023). Knowledge gaps have also been reported among healthcare trainees, doctors, and nursing staff (Ali et al., 2010; Majid et al., 2022). Pakistan-based evidence has identified low screening uptake, fear of gynecological examination, embarrassment, stigma, cost, and limited access to female healthcare providers as barriers to screening participation (Batool et al., 2017; Imam et al., 2008; Khan et al., 2025; Riaz et al., 2020; Shamaun et al., 2023). These barriers are not only individual but also social and structural, reflecting gaps in health education, service

accessibility, provider communication, and national preventive-health planning.

Gynecology nurses are well positioned to address these gaps because they often interact with women during antenatal care, family planning visits, gynecological consultations, reproductive-health education, and hospital or community-based services. Unlike general awareness campaigns, nurse-led communication can be personalized, repeated, culturally sensitive, and linked directly to available screening or referral services (International Council of Nurses [ICN] & European Forum of National Nurses and Midwives Associations [EFNNMA], 2022; Li et al., 2020; Musa et al., 2017). The reviewed literature suggests that intervention effectiveness varies by strategy. The most consistent evidence supports multi-component approaches that combine health education with provider recommendation, reminder or invitation systems, and navigation support, because these strategies address both knowledge and practical access barriers (Everett et al., 2021; Musa et al., 2017; Tchounga et al., 2023). Education alone improves knowledge and attitudes but may have a smaller effect on actual screening uptake when services are inaccessible, unaffordable, or culturally unacceptable (Agide et al., 2018; Li et al., 2020). Therefore, in Pakistan, gynecology nurses are likely to be most effective when counseling is linked to direct screening recommendation, referral guidance, appointment facilitation, and follow-up support rather than being limited to awareness messages alone.

The role of gynecology nurses should therefore be understood beyond general health education. Nurses can help women understand cervical cancer risk, reduce fear and misconceptions, explain the purpose of Pap smear or HPV testing, prepare women for screening procedures, facilitate appointment attendance, communicate results, and encourage follow-up after abnormal findings (ICN & EFNNMA, 2022; Perkins et al., 2020; WHO, 2021). In Pakistan, where sociocultural norms may make reproductive-health discussions sensitive, female gynecology nurses may also provide a more acceptable and trusted source of information for women and families.

This narrative review aimed to synthesize available evidence on cervical cancer screening awareness and uptake in Pakistan and to examine the role of gynecology nurses in improving women's engagement with preventive screening services. The specific objectives were: (1) to summarize the burden of cervical cancer and the current challenges related to screening awareness and uptake in Pakistan; (2) to identify individual, sociocultural, provider-related, and health-system barriers that limit cervical cancer screening participation; (3) to synthesize evidence on nurse-led education, counseling, community outreach, screening facilitation, referral guidance, and follow-up support; and (4) to highlight practical implications for gynecology nursing practice, healthcare institutions, policy development, and future research in Pakistan. The guiding review question was: How can gynecology nurses contribute to

improving cervical cancer screening awareness and uptake among women in Pakistan?

Despite increasing attention to cervical cancer awareness and screening barriers in Pakistan, previous literature has mainly described women's knowledge, attitudes, screening practices, or general system-level barriers. Less attention has been given to the specific, practice-based role of gynecology nurses across the prevention pathway, including culturally sensitive education, direct provider recommendation, screening preparation, service navigation, referral support, and follow-up after abnormal results. Existing reviews also provide limited Pakistan-specific synthesis of how nursing roles can be integrated into cervical cancer prevention within reproductive-health and gynecology services. This review addresses that gap by synthesizing available evidence on screening awareness and uptake and by clarifying how gynecology nurses can contribute to improving women's access to preventive cervical cancer services in Pakistan.

METHODS

1. Literature Search Strategy

A structured narrative literature search was conducted using PubMed/MEDLINE, Scopus, CINAHL, Web of Science, Google Scholar, and relevant organizational sources, including the World Health Organization, International Agency for Research on Cancer/Global Cancer Observatory, and International Council of Nurses. The search prioritized literature published from 2015 to 2025, although earlier landmark studies, guidelines, and global cervical cancer prevention documents were included

when directly relevant. The main search concepts were cervical cancer prevention, screening uptake, Pakistan or comparable low-resource settings, and nursing/provider roles. Search terms were combined using Boolean operators as follows: ("cervical cancer" OR "cervical neoplasm" OR "uterine cervical neoplasms") AND ("screening" OR "Pap smear" OR "HPV testing" OR "HPV vaccination") AND ("Pakistan" OR "low-resource setting" OR "low- and middle-income countries" OR "LMIC") AND ("nurse" OR "gynecology nurse" OR "nursing" OR "provider recommendation" OR "health education" OR "counseling" OR "community outreach" OR "referral" OR "follow-up"). Database-specific subject headings and spelling variations were used where available, including MeSH terms in PubMed/MEDLINE and CINAHL headings in CINAHL. Google Scholar was searched using simplified combinations of the same terms to identify additional eligible sources. The final literature search was completed on March 20, 2026.

2. Eligibility Criteria

Sources were included if they met at least one of the following criteria: (1) Addressed cervical cancer screening awareness, knowledge, attitudes, or practices among women; (2) Focused on cervical cancer prevention in Pakistan or comparable low-resource settings; (3) Examined barriers to cervical cancer screening uptake; (4) Discussed nurse-led, provider-led, educational, counseling, reminder, referral, or community-outreach interventions related to screening; (5) Provided guideline, policy, or global-health context relevant to HPV vaccination, cervical cancer screening, or cervical cancer elimination; and (6) Had implications for gynecology nursing, reproductive-health nursing, or women's preventive healthcare.

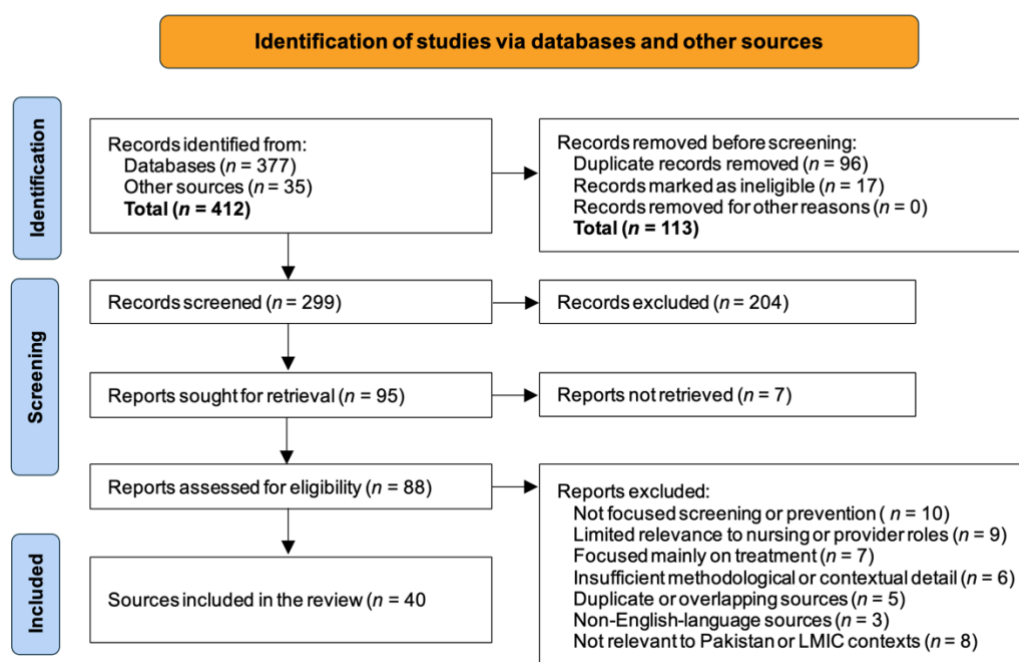


Figure 1. Flow Diagram of Literature Search and Selection Process

Sources were excluded if they focused only on the treatment of invasive cervical cancer without relevance to screening or prevention, did not address awareness or screening behavior, lacked relevance to cervical cancer prevention, screening, or the nursing- and provider-focused objectives of the review, were not available in English, or lacked sufficient relevance to the review aim.

3. Study Selection

Study selection was conducted in two stages. First, titles and abstracts were screened against the eligibility criteria to remove clearly irrelevant records. Second, potentially relevant full-text sources were assessed for inclusion in the narrative synthesis. Titles and abstracts were screened independently by HA and HF, followed by independent assessment of potentially eligible full-text reports. Disagreements were resolved through discussion and consensus, with ARA consulted when necessary. Final inclusion was based on relevance to the review aim, methodological clarity, and contribution to understanding cervical cancer screening awareness, uptake, barriers, or nursing roles. When duplicate publications or overlapping reports were identified, the most complete and relevant source was retained.

Full-text sources were then assessed according to the eligibility criteria. Priority was given to peer-reviewed empirical studies, systematic reviews, meta-analyses, clinical guidelines, global-health reports, and professional nursing documents. The final sources were selected based on relevance to the review aim and contribution to thematic synthesis.

4. PRISMA Flow of Literature Selection

A PRISMA-style flow process was used to document the search and selection of literature included in this narrative review (Page et al., 2021). The flow diagram was included only to enhance transparency regarding the identification, screening, eligibility assessment, and selection of literature for this narrative synthesis. Its use does not imply that the review followed the full methodological requirements of a systematic review or scoping review (Page et al., 2021; Tricco et al., 2018), such as protocol registration, formal risk-of-bias assessment, or meta-analysis.

A structured literature search identified 412 records from databases and additional sources. After removal of duplicates and ineligible records, 299 records were screened. Ninety-five reports were sought for retrieval, 88 full-text reports were assessed for eligibility, and 40 sources were included in the final narrative synthesis (Figure 1).

5. Data Extraction and Narrative Synthesis

Data from included sources were extracted using a structured summary approach. Extracted information included author, year, country or setting, design or source type, population or focus, main findings, barriers or facilitators of screening, and implications for gynecology nursing. Thematic

synthesis was conducted narratively. First, recurring concepts were identified across the included studies, such as awareness, stigma, female-provider preference, provider recommendation, education, outreach, navigation, referral, and follow-up. Second, similar concepts were grouped into broader themes. Third, themes were compared across Pakistan-based studies, international reviews, guidelines, and evidence from comparable low-resource settings. Finally, the themes were synthesized to explain how gynecology nurses may contribute to cervical cancer screening awareness and uptake in Pakistan.

Because this was a narrative review, no formal critical appraisal or risk-of-bias assessment was conducted. The findings were synthesized thematically and interpreted according to source type and relevance rather than pooled or formally graded for certainty.

RESULTS

The final narrative synthesis included 40 sources consisting of peer-reviewed empirical studies, systematic reviews, meta-analyses, clinical guidelines, global-health reports, and professional nursing documents. Table 1 summarizes the key sources that informed the narrative synthesis, including their study characteristics, principal findings, and implications for gynecology nursing. The included literature addressed cervical cancer burden, screening awareness, barriers to screening, nurse-led education, provider recommendation, community outreach, screening facilitation, and follow-up support. Findings were organized into major themes: low awareness and limited knowledge, sociocultural stigma and fear, the importance of female providers, provider recommendation, nurse-led education, community outreach, screening facilitation, follow-up after abnormal findings, and implementation barriers affecting nursing interventions. The thematic synthesis of these findings and their implications for gynecology nursing are presented in Table 2. The evidence base was heterogeneous in both design and strength. Pakistan-specific literature mainly consisted of cross-sectional studies, awareness studies, and educational outreach reports; these sources were valuable for identifying local knowledge gaps and sociocultural barriers but provided limited evidence of causal effects on screening uptake.

In contrast, systematic reviews, meta-analyses, and Cochrane evidence provided comparatively stronger support for the effectiveness of education, provider recommendation, reminders, and multi-component interventions, although much of this evidence came from international or other low-resource settings. Clinical guidelines and professional reports were used primarily to frame practice and policy implications rather than to provide primary intervention evidence. These reviews evaluated education, provider recommendation, reminder systems, and multi-component interventions in

international or low-resource settings (Agide et al., 2018; Everett et al., 2021; Li et al., 2020; Musa et al., 2017; Tchounga et al., 2023). Global guidelines and professional reports provided policy and practice direction but were not primary empirical studies. Therefore, the evidence was most consistent regarding the general value of education, provider recommendation, reminders, and navigation, while Pakistan-specific evidence on nurse-led intervention effectiveness remains limited and requires further research.

1. Global Burden and Prevention of Cervical Cancer

Cervical cancer remains a preventable but persistent global health problem. The global burden is concentrated in low- and middle-income countries where organized screening and HPV vaccination coverage are limited (Arbyn et al., 2020; Sung et al., 2021). The WHO elimination strategy emphasizes that cervical cancer can be controlled through a combination of HPV vaccination, high-performance screening, treatment of precancerous lesions, and management of invasive disease (WHO, 2020). Modeling studies suggest that achieving WHO elimination targets could substantially reduce cervical cancer incidence and mortality over time, especially in low-resource countries (Brisson et al., 2020; Canfell et al., 2020; Simms et al., 2019).

The experience of high-income countries demonstrates that organized screening systems can reduce cervical cancer incidence and mortality when screening is accessible, quality-assured, and linked to follow-up care (Fontham et al., 2020; Perkins et al., 2020). However, transferring these models to low-resource settings requires adaptation. In Pakistan and similar contexts, screening services may be opportunistic, poorly integrated, or unavailable to many women. Therefore, improving screening uptake requires both service availability and demand generation through trusted health communication.

2. Cervical Cancer Screening Awareness and Uptake in Pakistan

Evidence from Pakistan indicates that women and some healthcare workers have limited knowledge of cervical cancer risk factors, HPV infection, Pap smear testing, and HPV vaccination (Ali et al., 2010; Batool et al., 2017; Hirani et al., 2021; Imam et al., 2008; Khan et al., 2025; Majid et al., 2022; Riaz et al., 2020; Shahnaz et al., 2023; Shamaun et al., 2023). Riaz et al. (2020) similarly identified substantial gaps in women's knowledge, perceptions, and preventive practices related to HPV-associated cervical cancer in Karachi. Knowledge and preventive practices varied according to socioeconomic characteristics, indicating that education should be tailored to women's educational, social, and economic circumstances and linked to accessible preventive services. More recently, Khan et al. (2025) found that 84.7% of women attending gynecology clinics in Islamabad demonstrated poor knowledge of cervical cancer. Education, occupation, and income were associated

with knowledge, while willingness to receive HPV vaccination was high when vaccination was offered free of charge or at low cost. These findings reinforce the importance of combining education with affordable services, direct provider recommendation, and screening navigation. Across studies, a consistent pattern emerged: low screening uptake was not explained only by lack of knowledge. Pakistan-based studies repeatedly identified limited awareness, embarrassment, fear, and lack of female providers, whereas international reviews emphasized that uptake improves most when education is combined with provider recommendation, reminders, and access facilitation. This suggests a gap between awareness and action. Women may understand the importance of screening but still avoid or delay it when services are difficult to access, when privacy is limited, or when screening is not directly recommended by a trusted provider. The evidence also indicates that interventions are more likely to influence actual screening behavior when they address multiple levels simultaneously: individual knowledge, emotional concerns, cultural acceptability, provider communication, and health-system navigation. Even when women have heard of cervical cancer, they may not understand the purpose of screening or may believe that screening is necessary only after symptoms develop. This is a major barrier because cervical cancer screening is intended to identify precancerous changes before symptoms appear.

Pakistan-based studies and reports identify low perceived risk, fear of diagnosis, embarrassment, modesty concerns, lack of family support, cost, transportation barriers, and lack of female providers as factors that reduce screening uptake (Ali et al., 2010; Batool et al., 2017; Imam et al., 2008; Majid et al., 2022). These findings suggest that screening behavior is influenced not only by knowledge but also by cultural norms, gender dynamics, healthcare accessibility, and trust in providers.

The low screening uptake in Pakistan also reflects system-level limitations. Cervical cancer screening is not yet fully embedded into a national organized screening program, and many women are not routinely invited or reminded to attend screening. Without structured recall, referral, and follow-up systems, screening remains dependent on individual awareness, physician recommendation, or opportunistic encounters with healthcare providers. This creates an important role for gynecology nurses as educators, counselors, and navigators within women's health services.

3. Nurse-Led Education and Counseling

Nurse-led education is one of the most relevant strategies for improving cervical cancer screening awareness. International evidence shows that educational interventions can improve women's knowledge of cervical cancer, HPV, and screening, although their impact on actual screening uptake varies by intervention design, setting, and availability of services (Agide et al., 2018; Li et al., 2020; Musa et

al., 2017). Provider recommendation is particularly important because women may be more likely to attend screening when the message comes from a trusted healthcare professional (Musa et al., 2017).

Gynecology nurses are well positioned to deliver screening education because they often communicate with women during reproductive-health visits. They can explain the purpose of screening, clarify that screening is preventive rather than diagnostic of existing cancer, address fears about pain or embarrassment, and encourage women to attend screening even when they are asymptomatic. This role is especially important in Pakistan, where reproductive-health topics may be sensitive and women may prefer communication with female providers.

Counseling is also important because knowledge alone may not overcome fear, stigma, or misconceptions. Studies from low-resource settings suggest that counseling, motivational communication, and culturally appropriate education can increase screening intention and improve women's confidence in preventive services (Rosser et al., 2015; Tchounga et al., 2023). In Pakistan, gynecology nurses can use counseling to address common concerns, such as fear of diagnosis, embarrassment during pelvic examination, myths about infertility, and uncertainty about where to obtain screening.

4. Community Outreach and Awareness Promotion

Community outreach is another important nursing role. Many women who are at risk of cervical cancer may not attend routine gynecological services, especially in rural or underserved communities. Outreach programs in community centers, maternal-child health clinics, schools, and women's groups can extend cervical cancer prevention messages beyond hospitals. Evidence from low- and middle-income countries suggests that community mobilization, education sessions, outreach visits, and locally adapted communication strategies can support screening participation (Denny et al., 2017; Everett et al., 2021; Tchounga et al., 2023).

In Pakistan, community outreach should be culturally sensitive and should involve female healthcare workers where possible. Gynecology nurses can work with lady health workers, community midwives, physicians, public health staff, religious or community leaders, and local women's organizations to improve acceptance of screening messages. This collaboration may help reduce stigma and increase trust in cervical cancer prevention services.

5. Screening Facilitation and Service Navigation

Awareness alone is insufficient if women do not know how or where to access screening. Gynecology nurses can support screening facilitation by helping women schedule appointments, explaining test procedures, preparing women for Pap smear or HPV testing, guiding them through referral pathways, and reminding them about follow-up visits. Reminder and invitation systems have shown effectiveness in some contexts, particularly when they are linked to

accessible screening services (Everett et al., 2021; Rees et al., 2018).

Evidence from rural India demonstrated that a single round of HPV testing reduced advanced cervical cancer and cervical cancer mortality in a low-resource setting (Sankaranarayanan et al., 2009). In Nigeria, HPV self-sampling substantially increased screening uptake compared with hospital-based sample collection, indicating that alternative screening approaches may help reduce practical and facility-related access barriers (Modibbo et al., 2017). Experiences during the COVID-19 pandemic further highlighted the importance of resilient screening pathways, risk-based prioritization, and self-sampling options to reduce disruption-related disparities (Wentzensen et al., 2021). In the Pakistani context, gynecology nurses could support these approaches by explaining testing options, addressing women's concerns, facilitating referrals after positive results, and maintaining follow-up.

Service navigation is particularly relevant in Pakistan because women may face transportation barriers, cost concerns, limited female-provider availability, and fragmented referral pathways. Nurses can help reduce these barriers by connecting women to available services and explaining the steps involved in screening and follow-up. In facilities where screening is available, gynecology nurses can also help normalize screening as part of routine reproductive healthcare.

6. Follow-Up After Abnormal Screening Results

Follow-up after abnormal screening results is essential for cervical cancer prevention. Screening can reduce cervical cancer risk only when abnormal findings are communicated, evaluated, and treated appropriately. In low-resource settings, women may be lost to follow-up because of fear, cost, limited understanding, poor communication, or weak referral systems. Nurses can help prevent loss to follow-up by explaining results, providing reassurance, arranging referrals, tracking appointments, and encouraging adherence to treatment recommendations (ICN & EFNNMA, 2022; Perkins et al., 2020; WHO, 2021). This role is important in Pakistan because cervical cancer prevention requires continuity across awareness, screening, diagnosis, referral, treatment, and follow-up. Gynecology nurses can serve as a bridge between women, families, physicians, laboratories, and referral centers.

7. Barriers Affecting Nursing Interventions

Although gynecology nurses have strong potential to improve cervical cancer screening awareness and uptake, several barriers limit their effectiveness. These include staff shortages, heavy workloads, insufficient training in cervical cancer prevention, lack of educational materials, limited institutional support, weak referral systems, and the absence of organized screening pathways. Addressing these limitations requires investment in the nursing workforce, stronger training, institutional support, and formal integration of nurses into cervical

cancer prevention pathways (ICN, 2022; ICN & EFNNMA, 2022; WHO, 2020). Nurses may also have limited authority to initiate screening discussions or referral processes if preventive counseling is not formally included in clinical protocols.

Cultural barriers also affect nursing interventions. Discussions about sexual and reproductive health may be sensitive in conservative communities, and women may hesitate to discuss screening without privacy or family support. Therefore, nurses require training not only in cervical cancer prevention but also in culturally sensitive communication, counseling, confidentiality, and community engagement.

DISCUSSION

This narrative review synthesized evidence on cervical cancer screening awareness and uptake, with particular attention to the role of gynecology nurses in Pakistan. The findings align with previous research showing that cervical cancer prevention in low-resource settings is shaped by both individual-level and system-level factors (Agide et al., 2018; Everett et al., 2021; Musa et al., 2017; Tchounga et al., 2023).

Pakistan-based studies consistently show limited knowledge of cervical cancer, Pap smear testing, HPV infection, and HPV vaccination, while international evidence demonstrates that education is more effective when combined with provider recommendation, reminders, and navigation support (Ali et al., 2010; Batool et al., 2017; Hirani et al., 2021; Imam et al., 2008; Khan et al., 2025; Majid et al., 2022; Riaz et al., 2020; Shahnaz et al., 2023; Shamaun et al., 2023).

The findings can be interpreted through the Health Belief Model, which explains preventive health behavior in relation to perceived susceptibility, perceived severity, perceived benefits, perceived barriers, cues to action, and self-efficacy (Rosenstock et al., 1988). In the context of Pakistan, low perceived risk, fear of diagnosis, embarrassment, stigma, and uncertainty about screening procedures may reduce screening intention even when women have some awareness of cervical cancer. Gynecology nurses can influence several of these constructs by explaining risk, clarifying the preventive benefits of screening, reducing perceived barriers, increasing confidence, and providing direct cues to action through screening recommendation and referral guidance.

The findings also align with Andersen's Behavioral Model of Health Services Use, which emphasizes predisposing, enabling, and need-related factors in healthcare utilization (Andersen, 1995). In this review, knowledge, beliefs, stigma, and family influence represent predisposing factors; cost, transportation, availability of female providers, and referral pathways represent enabling factors; and perceived symptoms or perceived risk represent need-related factors. This theoretical interpretation shows why awareness alone is insufficient. Screening

uptake requires both motivation and an accessible, culturally acceptable pathway to care. The contribution of this review is therefore to position gynecology nurses not only as educators but also as facilitators of access, trust, referral, and continuity within cervical cancer prevention in Pakistan.

Therefore, awareness alone is unlikely to improve screening uptake unless it is combined with enabling factors and cues to action. These findings reinforce the role of gynecology nurses in providing culturally sensitive counseling, recommending screening, and facilitating referral and follow-up pathways to improve access to cervical cancer prevention services in Pakistan.

The review also highlights that provider recommendation is an important facilitator of screening. Women may not request Pap smear or HPV testing on their own because of limited knowledge, fear, or embarrassment. A direct recommendation from a gynecology nurse may normalize screening and reduce hesitation. In conservative settings, female nurses may be especially trusted because they can discuss reproductive-health concerns in a more acceptable and private manner.

Another important finding is that the role of gynecology nurses should extend beyond awareness creation. Nurses can support the entire cervical cancer prevention pathway by educating women, addressing fear, preparing women for screening, helping them access services, explaining results, encouraging referral, and supporting follow-up after abnormal findings. This broader role is important because screening only contributes to prevention when abnormal findings are followed by appropriate evaluation and treatment.

However, the contribution of gynecology nurses is limited by health-system barriers. Heavy workloads, staff shortages, lack of training, limited counseling materials, absence of formal protocols, weak referral pathways, and poor institutional support may prevent nurses from providing consistent screening education and follow-up. Therefore, strengthening the role of nurses requires more than individual motivation. It requires structured training, facility-level protocols, supportive supervision, culturally appropriate educational resources, and integration into national or provincial cervical cancer prevention strategies.

The findings also indicate a need for Pakistan-specific intervention research. Much of the available evidence comes from cross-sectional awareness studies or from interventions conducted in other low-resource countries. Although these findings are useful, local studies are needed to test whether nurse-led education, counseling, reminder systems, and referral navigation can improve actual screening uptake and follow-up adherence among Pakistani women. Future research should also examine nurses' knowledge, training needs, confidence, workload barriers, and institutional constraints.

Table 1. Summary of Key Sources Included in This Review

Author / Year	Country / Setting	Design / Source Type	Population / Focus	Main Findings	Implications for Gynecology Nurses
Arbyn et al. (2020)	Global	Epidemiological analysis	Global cervical cancer incidence and mortality	Cervical cancer burden remains concentrated in low- and middle-income countries.	Supports the need for preventive screening and frontline provider involvement in low-resource contexts.
Sung et al. (2021)	Global	Global cancer statistics	Cancer incidence and mortality worldwide	Cervical cancer remains a major cause of cancer-related death among women globally.	Provides burden justification for strengthening preventive nursing roles.
WHO (2020)	Global	Global strategy	Cervical cancer elimination	Introduced 90–70–90 targets for HPV vaccination, screening, and treatment.	Nurses can support awareness, vaccination education, screening referral, and follow-up.
WHO (2021)	Global	Guideline	Screening and treatment of cervical pre-cancer lesions	Recommends high-performance screening and timely treatment pathways.	Nurses need training in screening education, navigation, and follow-up support.
Brisson et al. (2020)	LMICs	Comparative modelling analysis	HPV vaccination and screening	Scaling vaccination and screening can substantially reduce cervical cancer burden.	Nurse-led education can support community acceptance of vaccination and screening.
Canfell et al. (2020)	LMICs	Comparative modelling analysis	Mortality impact of WHO targets	Achieving WHO targets could reduce cervical cancer mortality in low-income settings.	Nursing involvement is essential for service reach and continuity.
Simms et al. (2019)	Global	Modelling study	HPV vaccination and screening scale-up	Global elimination is possible with expanded vaccination and screening.	Nurses can contribute to demand generation and screening linkage.
Batool et al. (2017)	Pakistan	Review	Cervical cancer in Pakistan	Cervical cancer prevention is underdeveloped; awareness and screening remain low.	Highlights the need for structured nursing education and screening promotion.
Ali et al. (2010)	Pakistan	Cross-sectional study	Interns and nursing staff in Karachi	Knowledge about cervical cancer and prevention was variable among healthcare trainees and nursing staff.	Indicates need for cervical cancer prevention training among nurses.
Imam et al. (2008)	Pakistan	Cross-sectional study	Pakistani female population	Perceptions and practices regarding cervical cancer screening were limited.	Supports culturally sensitive education and counseling for women.
Majid et al. (2022)	Pakistan	Cross-sectional study	Doctors and nursing staff	Knowledge, screening practices, and attitudes toward cervical cancer screening required improvement.	Supports professional training for nursing and healthcare staff.
Shahnaz et al. (2023)	Pakistan	Educational outreach study	Urban women in Karachi	Awareness of cervical cancer, Pap smear testing, and HPV vaccination improved after educational outreach.	Shows value of structured health education for women.
Bruni et al. (2023)	Pakistan	HPV and related diseases report	National HPV/cervical cancer profile	Provides country-level HPV and cervical cancer prevention context.	Supports need for HPV and screening education in Pakistan.
Hirani et al. (2021)	Pakistan	Cross-sectional study	384 women attending outpatient clinics in Karachi	Knowledge and practices related to cervical cancer screening and prevention were limited, including awareness of Pap smear testing and HPV vaccination.	Supports targeted nurse-led education, direct screening recommendations, and counseling during outpatient encounters.
Riaz et al. (2020)	Pakistan	Cross-sectional study	450 women attending an outpatient department in Karachi	Knowledge, perceptions, and preventive practices related to HPV-associated cervical cancer were inadequate and	Nurses should tailor education and counseling to women's educational and socioeconomic

Author / Year	Country / Setting	Design / Source Type	Population / Focus	Main Findings	Implications for Gynecology Nurses
				varied according to socioeconomic characteristics.	circumstances and facilitate access to screening.
Khan et al. (2025)	Pakistan	Cross-sectional study	370 women attending gynecology clinics at tertiary hospitals in Islamabad	Most participants had poor cervical cancer knowledge; education, occupation, and income were associated with knowledge, although willingness to adopt affordable preventive measures was high.	Gynecology nurses can provide structured education, recommend preventive services, use appropriate communication channels, and facilitate access to screening and vaccination.
Musa et al. (2017)	Global	Systematic review and meta-analysis	Education and provider recommendation	Education and provider recommendation increased screening participation.	Supports nurse-led education and direct recommendation during clinical encounters.
Agide et al. (2018)	Global / LMICs	Systematic review	Health education interventions	Health education improved screening awareness and uptake in several settings.	Nurses can deliver structured education as part of preventive care.
Rees et al. (2018)	International	Systematic review	Lower socioeconomic groups	Tailored interventions improved screening uptake among underserved groups.	Nurse-led interventions should be culturally and socioeconomically adapted.
Everett et al. (2021)	International	Cochrane review	Interventions to increase cervical screening	Invitations, reminders, and education can support screening uptake.	Nurses can participate in reminder, invitation, and follow-up systems.
Li et al. (2020)	International	Systematic review and meta-analysis	Nurse-led cancer early-detection interventions	Nurse-led interventions can support early detection behaviors.	Strengthens rationale for formal nursing roles in screening pathways.
Rosser et al. (2015)	Kenya	Educational intervention	Rural women	Educational intervention improved knowledge and attitudes toward screening.	Shows relevance of culturally sensitive education in low-resource settings.
Tchounga et al. (2023)	LMICs	Systematic review and meta-analysis	Interventions to increase screening uptake	Multi-component interventions improved cervical cancer screening uptake.	Nursing programs should combine education, navigation, and access facilitation.
Ncube et al. (2015)	Jamaica	Cross-sectional study	Women's screening uptake	Uptake was influenced by knowledge, access, and perceived need.	Nurses should address both awareness and practical access barriers.
Marlow et al. (2017)	United Kingdom	Population-based analysis	Screening non-participants	Non-participants were heterogeneous, with different reasons for non-attendance.	Nurses should avoid one-size-fits-all counseling and tailor messages.
Fontham et al. (2020)	United States	Guideline update	Average-risk cervical cancer screening	Screening guidelines emphasize age-appropriate screening and follow-up.	Provides evidence base for nurse education on screening recommendations.
Perkins et al. (2020)	United States	Consensus guideline	Abnormal screening management	Risk-based management requires proper follow-up after abnormal results.	Nurses can support result communication and referral adherence.
ICN and EFNNMA (2022)	WHO European Region	Joint professional statement	Nursing and midwifery roles in cervical cancer elimination	Nurses and midwives are essential to HPV vaccination, screening access, Pap smear provision, follow-up of test results, treatment, and continuing care.	Supports formal nursing roles in cervical cancer education, vaccination promotion, screening delivery, referral, and follow-up.

Table 2. Thematic Synthesis of Evidence on Cervical Cancer Screening and the Role of Gynecology Nurses

Theme	Supporting Literature	Synthesized Findings	Relevance to Pakistan	Implications for Gynecology Nurses
Low awareness and limited knowledge	Ali et al. (2010); Batool et al. (2017); Hirani et al. (2021); Imam et al. (2008); Khan et al. (2025); Majid et al. (2022); Riaz et al. (2020); Shahnaz et al. (2023); Shamaun et al. (2023)	Many women and some healthcare workers have limited knowledge of cervical cancer, HPV infection, Pap smear testing, and the preventive purpose of screening.	Low awareness reduces screening demand and causes women to seek care only after symptoms appear.	Nurses should provide repeated, simple, culturally appropriate education during reproductive and gynecological visits.
Misconceptions, fear, and stigma	Imam et al. (2008); Marlow et al. (2017); Ncube et al. (2015); Rees et al. (2018)	Fear of diagnosis, embarrassment, modesty concerns, and stigma reduce willingness to undergo screening.	Reproductive-health discussions may be sensitive in conservative communities.	Gynecology nurses should use private, respectful counseling to reduce fear and normalize preventive screening.
Importance of female healthcare providers	Batool et al. (2017); Imam et al. (2008); Majid et al. (2022)	Women may be more willing to discuss screening with female providers.	Lack of female providers can reduce screening acceptability.	Female gynecology nurses can serve as trusted educators and screening facilitators.
Provider recommendation	Everett et al. (2021); Musa et al. (2017); Rees et al. (2018)	Provider recommendation is associated with improved screening participation.	Women may not request screening unless a provider directly recommends it.	Nurses should actively recommend screening rather than waiting for women to ask.
Nurse-led education	Agide et al. (2018); Li et al. (2020); Rosser et al. (2015); Shahnaz et al. (2023)	Educational interventions can improve knowledge, attitudes, and screening intention.	Structured education is needed in hospitals, clinics, and communities.	Nurses should deliver standardized education using brochures, visual aids, and counseling scripts.
Community outreach	Denny et al. (2017); Rosser et al. (2015); Tchounga et al. (2023)	Community-based interventions can reach underserved women who do not attend routine services.	Rural and low-income women may have limited access to facility-based information.	Nurses should collaborate with lady health workers, community leaders, and maternal-health programs.
Screening facilitation	Everett et al. (2021); Rees et al. (2018); WHO (2021)	Reminders, navigation, and appointment support can increase screening completion.	Lack of organized invitation and recall systems limits uptake.	Nurses can assist with appointments, explain procedures, and connect women to available services.
Follow-up after abnormal findings	ICN & EFNNMA (2022); Perkins et al. (2020); WHO (2021)	Screening is effective only if abnormal results are followed by timely diagnosis and treatment.	Women may be lost to follow-up because of fear, cost, or unclear referral pathways.	Nurses can track follow-up, communicate results, provide reassurance, and support referral adherence.
Health-system barriers	Bruni et al. (2023); ICN and EFNNMA (2022); WHO (2020)	Staff shortages, limited training, weak referral systems, and insufficient policy support restrict prevention efforts.	Nurses may lack time, training, authority, or resources for screening promotion.	Nursing roles should be formally integrated into screening protocols and national prevention strategies.
Need for policy integration	Brisson et al. (2020); Canfell et al. (2020); Simms et al. (2019); WHO (2020)	Elimination targets require vaccination, screening, treatment, and system-level coordination.	Pakistan needs stronger preventive infrastructure and workforce involvement.	Nurses should be included in cervical cancer prevention policy, training, data collection, and public-health campaigns.

Overall, the evidence supports the inclusion of gynecology nurses as active contributors to cervical cancer prevention in Pakistan. Their role is likely to be strongest when education, counseling, service navigation, and follow-up are combined into a structured nursing intervention. In a setting where cervical cancer screening remains low and sociocultural barriers are substantial, strengthening gynecology nurses' capacity may provide a practical and culturally acceptable approach to improving women's access to preventive reproductive healthcare.

Practical Implications for Pakistan

The literature suggests several implications for nursing practice and policy in Pakistan. First, gynecology nurses should be formally trained in cervical cancer prevention, HPV vaccination, Pap smear and HPV testing, counseling skills, and referral pathways. Second, hospitals and reproductive-health clinics should integrate nurse-led screening education into routine maternal and gynecological care. Third, community outreach programs should involve gynecology nurses and female community health workers to increase acceptability. Fourth, nurse-led counseling should address fear, stigma, misconceptions, and practical access barriers. Fifth, screening programs should include follow-up mechanisms so that women with abnormal results are not lost after initial testing.

At the policy level, nurses should be recognized as essential members of cervical cancer prevention teams. Their contribution should not be limited to supportive tasks; rather, nurses should be included in awareness campaigns, screening navigation, data collection, follow-up systems, and patient education. Strengthening nursing capacity may help Pakistan move closer to WHO cervical cancer prevention targets, especially if nurse-led interventions are integrated into organized screening and HPV vaccination strategies.

The following recommendations are based on the level and type of evidence identified in this review. Recommendations related to education, counseling, provider recommendation, reminders, and navigation are directly supported by systematic reviews and intervention literature showing improvements in awareness, intention, or screening uptake (Agide et al., 2018; Everett et al., 2021; Li et al., 2020; Musa et al., 2017; Tchounga et al., 2023). Recommendations related to culturally sensitive communication, female-provider involvement, and reduction of stigma are supported by Pakistan-based awareness and barrier studies (Ali et al., 2010; Batool et al., 2017; Imam et al., 2008; Majid et al., 2022). Policy recommendations, such as integrating nurses into organized screening pathways, are informed by WHO guidance and professional nursing reports, but require further Pakistan-based implementation research to determine feasibility and effectiveness.

Recommendations

For Nursing Practice

Gynecology nurses should provide structured cervical cancer prevention education during routine reproductive-health encounters, including antenatal care, postnatal care, family planning visits, and gynecology outpatient consultations. Education should explain cervical cancer risk factors, HPV infection, Pap smear testing, HPV testing, HPV vaccination, and the importance of screening before symptoms appear.

Nurses should provide private and culturally sensitive counseling to address fear, embarrassment, stigma, misconceptions, and low perceived risk. Counseling should emphasize that cervical cancer screening is preventive, confidential, and intended to detect early changes before cancer develops.

Gynecology nurses should actively recommend screening to eligible women. Rather than waiting for women to ask about screening, nurses should include cervical cancer prevention as part of routine women's health education.

For Healthcare Institutions

Hospitals, gynecology clinics, maternal-health centers, and primary healthcare facilities should integrate nurse-led cervical cancer education into routine care. Facilities should develop standard counseling protocols that include key messages, eligibility guidance, referral steps, and follow-up instructions.

Healthcare institutions should provide private counseling areas and culturally appropriate educational materials. These resources are important because women may be reluctant to discuss reproductive-health concerns in open or crowded clinical settings.

Facilities should also establish nurse-supported referral and follow-up systems. Nurses can help women schedule screening, understand procedures, receive results, attend referral appointments, and remain engaged after abnormal findings.

For Policy

Cervical cancer prevention should be more clearly integrated into Pakistan's reproductive-health and women's-health policies. Nurses should be formally recognized as essential members of cervical cancer prevention teams.

National and provincial health authorities should develop training modules for nurses on cervical cancer prevention, HPV vaccination, screening methods, communication skills, and referral pathways. These modules should be included in nursing education, continuing professional development, and hospital-based training.

Pakistan should strengthen organized screening pathways that include nurse-led education, screening recommendation, referral navigation, and follow-up. Opportunistic screening alone is unlikely to

reach women who face social, geographic, or economic barriers.

For Future Research

Future research should evaluate nurse-led cervical cancer education and screening-navigation interventions in Pakistani settings. Studies should measure not only knowledge and intention but also actual screening uptake, referral completion, follow-up adherence, and patient satisfaction.

Further qualitative research is needed to explore women's perceptions of cervical cancer screening, family influence, concerns about modesty, preferences for female providers, and trust in nurses. Research should also assess nurses' own training needs, workload challenges, and confidence in providing cervical cancer screening education.

Limitations

A formal critical appraisal or risk-of-bias assessment of the included studies was not conducted. This reflects the narrative review design of the manuscript, which was intended to synthesize key themes, clinical implications, and practice-relevant insights rather than to provide a systematic evaluation of evidence certainty or pooled estimates of intervention effectiveness. The included sources were also heterogeneous in design and purpose, comprising empirical studies, reviews, guidelines, and professional reports, which limited the applicability of a single appraisal framework across all materials. The evidence base includes studies from Pakistan as well as comparable low-resource settings, which may limit direct generalizability. In addition, many studies on awareness and screening uptake are cross-sectional, making it difficult to determine causal effects. Future research should include intervention studies in Pakistan to evaluate whether nurse-led education, counseling, reminder systems, and community outreach improve actual screening uptake and follow-up adherence.

CONCLUSION

Cervical cancer remains a preventable public health challenge in Pakistan because of low awareness, sociocultural barriers, limited screening access, and weak preventive-health infrastructure. This narrative review contributes to nursing knowledge by synthesizing cervical cancer screening evidence through a gynecology nursing lens and by identifying how nurses can support multiple stages of the prevention pathway, including education, counseling, direct screening recommendation, community outreach, service navigation, referral guidance, and follow-up after abnormal findings.

The review suggests that gynecology nurses can play an important role in translating cervical cancer prevention messages into culturally acceptable and practical action for women in

Pakistan. However, their contribution depends on structured training, adequate staffing, institutional protocols, private counseling spaces, educational materials, referral systems, and integration into broader cervical cancer prevention policies. For practice, the findings support routine nurse-led screening education during reproductive-health encounters. For policy, they support formal recognition of nurses in screening pathways, HPV vaccination education, data collection, community outreach, and follow-up systems. Because this review used a narrative design, the findings should be interpreted as a thematic synthesis rather than evidence of pooled intervention effectiveness. Future Pakistan-based intervention studies are needed to evaluate whether nurse-led education, counseling, reminder systems, and referral navigation improve actual screening uptake, follow-up adherence, and patient satisfaction.

Author Contributions

Conceptualization, Methodology, Data Extraction, Analysis, Writing – Original Draft: Huma Afzal and Hina Fatima; Writing – Review & Editing: Aqeel Rana Afzal.

Data Availability Statement

This study is based exclusively on previously published literature. No new datasets were generated or analyzed.

Conflict of Interest

The authors declare no competing interests.

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Declaration of Use of AI in Scientific Writing

During the preparation of this manuscript, the authors used ChatGPT (OpenAI) solely to improve the clarity, grammar, and readability of the English language. ChatGPT was not used for literature searching, study selection, data extraction, data analysis, interpretation of findings, or generation of scientific conclusions. The authors critically reviewed, edited, and approved the final manuscript and take full responsibility for its content.

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