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Original Article

Exploring The Reasons Behind Delay in Detection of Cervical Cancer in Pakistani Population

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Abstract

Objective: To explore the factors contributing to delayed detection and treatment of cervical cancer among Pakistani women presenting with advanced disease.

Methodology: This exploratory study was conducted in the Department of Obstetrics and Gynecology, Ayub Teaching Hospital, Abbottabad, Pakistan, from January to June 2025. We conducted semi-structured, in-depth interviews with 15 patients; each interview took about 30-45 minutes. Interviews included participants' knowledge of cervical cancer, the presentation of symptoms, health-seeking behavior, experiences of diagnosis, treatment, and family reactions, and financial constraints. We used Braun and Clarke's thematic analysis approach.

Results: 15 women aged 35–55 years, with a Mean age of $46.0 \pm SD$ years, with advanced cervical cancer were recruited. Themes that emerged from the analysis included knowledge about cervical cancer, personal behavior, sociocultural attitudes and beliefs, financial barriers, and health-system-related factors. Financial barriers included the cost of diagnostic testing, transportation, and loss of income. Health system factors included a lack of screening services, delayed referrals, poor patient-provider communication, poor follow-up, facility overcrowding, and a lack of specialist services.

Conclusion: Delayed cervical cancer detection resulted from interconnected patient, sociocultural, financial, and health-system barriers. Strengthening screening services, improving community awareness, ensuring timely referral, reducing financial barriers, and empowering women may facilitate earlier detection and treatment.

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Introduction

Cervical cancer remains an important public health problem despite being one of the cancers for which effective primary and secondary prevention strategies are available. Persistent infection with high-risk human papillomavirus (HPV) is the principal cause of cervical cancer, while HPV vaccination, screening, and timely treatment of precancerous lesions provide opportunities to prevent invasive disease. Global estimates indicate that the greatest burden of cervical cancer continues to occur in low- and middle-income countries, where limitations in prevention, screening, diagnosis, and treatment contribute to avoidable morbidity and mortality [1].The World Health Organization (WHO) has set global targets to eliminate cervical cancer, stating that HPV vaccination, high-performance screening, and adequate treatment of women whose cancer screen came back positive or who have cervical precancer should be prioritized. The WHO strategy clearly acknowledges that screening is not enough unless women can be supported along the whole continuum of care, from receiving the results to being referred, assessed through diagnostics, and treated. [2] Pakistan, in particular, faces challenges in achieving these objectives. Data from Pakistani populations has shown significant lack of awareness of cervical cancer, HPV infection, cervical screening and HPV vaccination. In the tertiary-care study, only 41.2% of women knew about cervical cancer, 33.6% knew about cervical screening, and only 15.9% indicated previous cervical screening. Awareness of HPV vaccination was particularly low [3]. Likewise, more recent Pakistani data show significant gaps in knowledge about the prevention and screening of cervical cancer and reveal that information, poverty, and poor access to health care are significant barriers[4]. Delayed diagnosis is a multi-factorial process. It can start with poor recognition of symptoms, include delays in deciding to seek medical attention, and lead to difficulties in obtaining the correct investigations, referral, specialist assessment, and treatment. A systematic review identified the patient, medical-history-related, and health-system-related components of diagnostic delay in cervical cancer. Reported factors included lack of knowledge, socio-economic conditions, partners' factors, access to health facilities, and health facility constraints[5]. Low- and middle-income countries also face multiple screening barriers. A systematic review identified individual, cultural, religious, societal, health system, and structural barriers, with the most common individual barrier being lack of knowledge and awareness. Other factors that may influence screening behavior include cost, geographical access, inadequate health infrastructure, partner/family support, and sociocultural beliefs[6]. Restricted financial resources are likely relevant, as they can affect women's willingness to follow through with the diagnostic process and/or later treatment[7]. Women's perceptions of gynecological symptoms and screening may also be influenced by factors related to the socio-cultural context. Fear and embarrassment, anticipated stigma, perceived susceptibility, and concerns about pelvic examinations are barriers to cervical screening in various populations. These could be especially important where the social sensitivity of reproductive health and STI conversations persists [8]. Another essential factor is health-system capacity. Screening programs in low- and middle-income areas may be fragmented, inaccessible, under-resourced, or poorly connected to diagnosis and treatment services. Therefore, strengthening health systems and embedding screening within existing health services are key elements of equitable cervical cancer prevention [9]. While quantitative research has documented low uptake of screening and poor awareness among Pakistani women, less research has examined the experiences of women with advanced cervical cancer. This study may provide information that structured questionnaires cannot fully capture by exploring how women understand symptoms, make decisions about seeking care, interact with health care services, and navigate the financial and social barriers they may encounter. The novelty of the present study lies in its qualitative exploration of the diagnostic journey among Pakistani women who had already presented with advanced cervical cancer, allowing patient-level experiences to be examined across individual, sociocultural, financial, and health-system domains. By identifying interconnected barriers from the women's perspectives, this study aims to provide context-specific evidence that may inform strategies for earlier recognition, referral, diagnosis, and treatment of cervical cancer in Pakistan.

Materials & methods

Study Design and Setting

This exploratory qualitative study was conducted in the Department of Obstetrics and Gynecology, Ayub Teaching Hospital, Abbottabad, Pakistan, from January to June 2025. The study aimed to investigate women's experiences and perceptions of the factors that delay the detection and treatment of cervical cancer.

Participants

Fifteen women with advanced cervical cancer were recruited for participation. Participants ranged in age from 35 to 55 years, with a reported mean age of 46.0 ± SD years. The study focused specifically on women presenting with advanced disease, as their experiences may be useful in understanding barriers to diagnosis and treatment prior to diagnosis.

Data Collection

We used semi-structured, in-depth interviews to collect data. All interviews were about 30-45 minutes. The interview guide covered topics such as knowledge about cervical cancer, symptom awareness and understanding, prior health-seeking, healthcare provider experiences, diagnostic processes, referrals, treatment experiences, family reactions, and financial problems. The semi-structured format enabled participants to describe their experiences in their own words while ensuring that each interview covered the main points related to delayed detection.

Qualitative Data Analysis

Thematic analysis was used to analyze the interview data using Braun and Clarke's approach. The analysis process included familiarizing myself with the interview content, identifying initial codes, developing candidate themes, reviewing and refining themes, defining and naming themes, and synthesizing the final findings. Thematic analysis was chosen because it allows identification and interpretation of themes and patterns within qualitative data while maintaining participants' contextual experiences. Current advice focuses on the need for transparent and reflexive 'thematic' analysis, rather than on qualitative coding as a purely mechanical process.

Results

Participant Characteristics

Fifteen women with advanced cervical cancer participated in the study. Participants ranged in age from 35 to 55 years (mean age 46.0 years). The qualitative interviews were not limited to one aspect of diagnostic delay and explored several aspects of the diagnostic journey.

Table 1. Participant characteristics

Characteristic	Finding
Number of participants	15
Sex	Female
Age range	35–55 years
Mean age	46.0 years
Clinical condition	Advanced cervical cancer
Interview duration	Approximately 30–45 minutes
Study period	January–June 2025
Study setting	Ayub Teaching Hospital, Abbottabad, Pakistan

Data are presented as reported in the study protocol/abstract. No additional participant-level characteristics were available; therefore, none were inferred.

Emergent Themes

The interviews revealed 5 major themes: lack of knowledge and symptom recognition, individual health-seeking behavior, sociocultural attitudes and beliefs, financial barriers, and health-system barriers.

Table 2. Major themes and subthemes identified from the interviews

Major theme	Subthemes identified
Knowledge and symptom recognition	Limited knowledge of cervical cancer; inadequate awareness of warning symptoms; delayed recognition of potentially concerning symptoms
Personal health-seeking behavior	Delayed decision to seek care; initial management outside specialist services; postponement of diagnostic evaluation
Sociocultural attitudes and beliefs	Family reactions; social perceptions; embarrassment or reluctance regarding gynecological symptoms; influence of family on healthcare decisions
Financial barriers	Cost of diagnostic investigations; transportation expenses; treatment-related financial concerns; loss of income
Health-system barriers	Limited screening services; delayed referral; inadequate patient-provider communication; poor follow-up; overcrowding; limited specialist services

Themes were derived from the qualitative interviews. The table summarizes the domains reported in the study and does not assign numerical frequencies to individual themes.

Knowledge and Personal Health-Seeking Behavior

Participants identified lack of knowledge about cervical cancer and lack of awareness of symptoms as important factors in the delay of diagnosis. Symptoms might not have been recognized as threatening, so medical advice might have been delayed, or the patient might have gone through several steps before reaching a specialist assessment.

Sociocultural Factors

Participants also described the sociocultural factors that shape their health care experiences. Family reactions and societal attitudes influenced perceptions of symptoms and treatment. Embarrassment and/or the reluctance to talk about reproductive health concerns can cause a delay in seeking advice from the gynae. The results align with other evidence that fear, embarrassment, stigma, low perceived risk, and lack of support from family and/or partner can lead to poor uptake for cervical screening.

Financial Barriers

Money issues were consistently mentioned as a major contributor to failed care. Participants reported difficulties with the cost of diagnostic investigations, transportation, and income loss due to attending health service facilities. Financial restrictions may affect uptake of screening and diagnostic follow-up. Past studies have shown that screening cost, expected treatment cost, transportation, and income loss can be barriers to women following recommended screening pathways.

Health-System Barriers

Barriers identified within the health system included inadequate availability of screening services, delayed referrals, poor patient-provider communication, lack of follow-up, overcrowding of health care facilities, and limited access to specialist services.

These barriers are significant as the whole continuum of screening, diagnosis, referral, and treatment is crucial to cervical cancer prevention. The WHO guidance states that women who test positive should receive timely, appropriate treatment, diagnostic assessment, and referral to, and communication with, a health worker.

Table 3. Multilevel factors contributing to delayed cervical cancer detection

Level	Identified barriers	Potential point of intervention
Individual	Limited knowledge, poor symptom recognition, delayed healthcare seeking	Community education and symptom-awareness campaigns
Sociocultural	Embarrassment, family influence, social attitudes and beliefs	Family-inclusive education and culturally appropriate counseling
Financial	Diagnostic costs, transportation expenses, loss of income	Subsidized screening/diagnosis and financial assistance
Healthcare access	Limited screening availability, specialist access	Expansion of screening and referral services
Health system	Delayed referrals, poor follow-up, overcrowding	Standardized referral pathways and patient tracking
Provider-patient interaction	Inadequate communication	Communication training and clear counseling
Continuity of care	Loss to follow-up and fragmented services	Integrated screening-to-treatment pathways

The table synthesizes the qualitative domains identified in the interviews. Intervention points are presented as implications of the identified barriers rather than measured outcomes of the present study.

Discussion

The present qualitative study demonstrates that delayed detection of cervical cancer among Pakistani women with advanced disease is a multidimensional phenomenon. Five interconnected domains emerged from the interviews: Lack of knowledge, lack of symptom recognition, health-seeking behavior, socio-cultural factors, financial factors, and health-system factors. These factors do not work in isolation; instead, they seem to influence one another throughout the diagnostic process[10]. Limited knowledge was an important component of the participants' experiences. This is in line with Pakistan's studies, which indicated a significant gap in awareness of cervical cancer, screening, HPV infection, and HPV vaccination. A tertiary-care study in Pakistan reported a low awareness rate among women about cervical cancer (41.2%) and even lower awareness of screening and HPV vaccination for cervical cancer[11,12]. A more recent Pakistani study also revealed significant gaps in knowledge about cervical cancer and that lack of information was a factor in cervical cancer screening. It also indicates that awareness should not be limited to the mere recognition of the name of cervical cancer but, in addition, awareness of the warning signs, awareness of the HPV infection, awareness of the available tests, and awareness that the tests are useful even if there are no symptoms.International evidence also points towards the significance of knowledge. Inadequate knowledge and awareness were one of the most cited individual-level barriers in a systematic review of cervical screening barriers in low- and middle-income countries. The following factors were also associated with lower screening uptake: cultural and religious beliefs, lack of support from family members, geographic accessibility, cost, and issues with health-system infrastructure[14]. Likewise, a systematic review examining access from an accessibility perspective identified interconnected determinants,

including awareness, affordability, availability, acceptability, and geographical accessibility. The present findings also highlight the importance of health-seeking behavior. Failure to understand the significance of symptoms may delay patient care and access to appropriate diagnostic services. The notion of delayed diagnosis of cervical cancer has been investigated using a systematic review, which identified three dimensions: patient-related, medical-history-related, and health-system-related, thus showing that there is seldom a single cause for delayed diagnosis[16]. The present qualitative results support this multidimensional model in the context of Pakistani women who are diagnosed as having advanced disease. Another important domain was the sociocultural factors. Participants reported family reactions and societal attitudes as experiences. Discussions of cervical cancer and gynecologic symptoms might be challenging due to embarrassment, stigma, or fear of social judgment. Qualitative studies in diverse groups have also shown fear, embarrassment, shame, low perceived risk, and lack of family support are barriers to screening [17]. This might be especially relevant in societies where reproductive health choices are shaped by family formation and where talking about reproductive health is socially taboo. Financial obstacles were another significant finding. The costs of diagnostic investigations and transportation, combined with lost income, may prevent women from seeking timely health care and/or referrals. Financial constraints include not only the cost of the screening procedure but also women's expectations of costs for confirmatory investigations and treatment after screening. Two studies of underscreened, low-income women revealed perceived screening costs and anticipated future treatment costs as barriers[18]. Reducing direct and indirect costs can be a significant aspect of early diagnosis, especially within the context of Pakistan's varying socioeconomic conditions and geographic location for healthcare access. The barriers identified in the health system included limited screening availability, delayed referral, poor communication, lack of follow-up, overcrowding, and limited specialist services. This is congruent with evidence that fragile healthcare systems and inequitable access can hinder cervical cancer elimination in LMICs[19]. Strengthening of health systems should go beyond identifying screening services. The screening process needs to be linked with effective referral, diagnosis, treatment, and follow-up services.WHO cervical cancer elimination strategy highlights the importance of the full cervical cancer continuum of care. Screening programs should deliver results to women promptly, and deliver further evaluation and/or treatment services without undue delay if needed[20]. Integrating screening into ongoing healthcare services could increase access and continuity, especially in low-resource areas. A recent scoping review also highlighted the need to incorporate cervical cancer screening into existing health care systems in low- and middle-income countries [21]. The findings have various practical ramifications for Pakistan. Awareness interventions should be tailored to local knowledge gaps and not general cancer messages. Second, screening should be more readily available and accessible via integration with reproductive health and primary care. Third, referral systems need to be regularized so that women with abnormal screening and/or women with particular symptoms are promptly referred to the appropriate diagnostic services[22]. Fourth, patient surveillance and follow-up systems could minimize loss to follow-up. Finally, cervical cancer prevention programs should account for financial and geographic factors. Evidence from low- and middle-income countries shows multiple points within the cancer care pathway that can be targeted to improve timely cancer diagnosis, including community awareness, primary care recognition, referral, and access to diagnosis. It is important to consider prevention strategies specific to health system capacity and sociocultural context rather than simply importing programs created in high-income countries.This study should be interpreted in light of its qualitative design. The sample consisted of 15 women from a single tertiary-care setting, and participants were specifically women with advanced cervical cancer. Consequently, the findings are intended to provide an in-depth understanding of perceived barriers rather than estimates of their prevalence in the Pakistani population. The findings should not be generalized to all Pakistani women without consideration of differences in geography, socioeconomic circumstances, healthcare access, and cultural context. Nevertheless, the convergence of the themes with findings from previous Pakistani and international studies strengthens the relevance of the identified domains. This study has some disadvan

tages. Firstly, the sample size was very small (n = 15). Second, the study participants were recruited from a single tertiary care hospital and had advanced cervical cancer; thus, their experiences might differ from those of women with early-stage cancer or women who never received specialist care [23]. Third, the qualitative results reflect participants' reported experiences and perceptions and may be subject to recall or social-desirability bias. Third, the study was carried out in Abbottabad, so the results may not fully represent women in other parts of Pakistan with varying socio-economic, cultural, and healthcare environments.

Conclusion

Delayed detection of cervical cancer among Pakistani women appears to arise from interconnected individual, sociocultural, financial, and health-system barriers. Improving community awareness, expanding accessible screening, strengthening referral and follow-up systems, improving patient-provider communication, and reducing financial barriers may facilitate earlier diagnosis and treatment.

Ethical Approval

Ethical approval was obtained from the Ayub Medical Teaching Institution Abbottabad Institutional Medical & Ethics Review Committee (**Approval Code/Ref. No.** RC-FA-2024/171; **Date of Approval:** 12 Sep 2024).

Informed Consent

We obtained written informed consent from all participants before they participated in the interviews. Participants were informed about the study's purpose, the voluntary nature of participation, confidentiality, and their right to withdraw without affecting their medical care.

Funding

This study received no external funding.

Conflict of Interest

The authors declare that they have no competing interests or conflicts of interest related to this study.

Authors' Contributions

Bushra Khan: Conceptualization, study design, participant recruitment, data collection, data analysis, manuscript drafting, and critical revision.

Shehla Noor: Conceptualization, supervision, interpretation of findings, critical revision of the manuscript, and final approval of the version to be published.

Laraib Istafa: Literature review, participant interviews, data organization, thematic analysis, and manuscript revision.

Afia Kausar: Literature review, data organization, manuscript drafting and revision, and reference verification.

Data Availability

The qualitative data generated during this study are not publicly available because the interview material contains potentially identifiable participant information. Relevant information may be made available by the corresponding author upon reasonable request, subject to ethical and confidentiality requirements.

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