

Symptom experiences among patients with cervical cancer: a qualitative meta-synthesis

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Abstract

Objective To systematically review and synthesize qualitative evidence on symptom experiences among patients with cervical cancer throughout the disease trajectory, elucidate their multidimensional symptom burden and coping patterns, and provide evidence for developing patient-centered integrated symptom management and supportive care strategies.

Methods A systematic search was conducted in PubMed, Embase, the Cochrane Library, Web of Science, China National Knowledge Infrastructure (CNKI), Wanfang Database, VIP Database, and the China Biomedical Literature Database (CBM) for qualitative studies on symptom experiences among patients with cervical cancer from database inception to July 2026. The methodological quality of the included studies was assessed using the Joanna Briggs Institute (JBI) Critical Appraisal Checklist for Qualitative Research. A meta-aggregation approach was used to synthesize and integrate the findings. This review was registered in PROSPERO (CRD420251136197).

Results A total of 13 studies were included. Forty-eight findings were extracted, aggregated into nine categories, and further synthesized into four integrated findings: (1) insufficient and ambiguous perceptions of cervical cancer symptoms; (2) multidimensional manifestations of symptom burden; (3) self-regulation and coping strategies in response to symptom experiences; and (4) care dilemmas and lack of support during symptom experiences among patients with cervical cancer.

Conclusions Patients with cervical cancer experience complex and multidimensional symptom burdens and adaptation challenges throughout the disease trajectory. Healthcare professionals should strengthen early symptom recognition and risk perception, implement integrated assessments and interventions addressing physical, psychological, and social dimensions, and support patients in developing effective self-management abilities. Furthermore, multilevel support systems are needed to alleviate structural barriers and promote a continuous and trajectory-based approach to symptom management.

Introduction

Cervical cancer is one of the three most common malignancies of the female reproductive system worldwide and poses a significant threat to women's health^[1]. According to global cancer statistics, approximately 604,000 new cases of cervical cancer and 342,000 related deaths were reported worldwide in 2020^[2]. In China, an estimated 150,000 new cases and 55,000 deaths occurred in 2022, accounting for nearly one-quarter of the global burden^[3]. Cervical cancer remains among the leading malignancies affecting women, with an increasing trend toward younger age at diagnosis, making it an important public health concern that affects the health and social functioning of women of reproductive age^[4–5].

Although advances in diagnosis and treatment, including surgery, radiotherapy, chemotherapy, and targeted therapy, have substantially improved survival outcomes, patients with cervical cancer continue to experience multiple complex symptoms throughout the disease trajectory, including pain, fatigue, urinary and sexual dysfunction, nausea and vomiting, alopecia, and psychological distress such as anxiety and depression. These symptoms significantly impair patients' quality of life^[6–7]. Evidence indicates that inadequately managed symptoms may not only further compromise quality of life but also reduce treatment adherence and increase disease burden^[8].

Symptom experience refers to the multidimensional process through which patients perceive, evaluate, and respond to symptoms, and serves as an important basis for identifying nursing needs and developing targeted interventions^[9]. Previous qualitative studies have explored symptom experiences among patients with cervical cancer; however,

existing studies have primarily focused on specific disease stages or individual symptoms, and a comprehensive synthesis of patients' lived experiences remains lacking. Therefore, this study aimed to systematically review and synthesize qualitative evidence on symptom experiences among patients with cervical cancer using a qualitative meta-synthesis approach, identify common themes, elucidate the multidimensional characteristics of symptom experiences, and provide evidence to support individualized and continuous symptom management and interventions.

Methods

Study design

This study employed a qualitative meta-synthesis approach guided by the Joanna Briggs Institute (JBI) methodology^[10]. The methodological quality of the included studies was appraised using the JBI Critical Appraisal Checklist for Qualitative Research, and a meta-aggregation approach was used to synthesize and integrate the findings. This review was registered with PROSPERO (registration number: CRD420251136197).

Search strategy

A systematic literature search was conducted in PubMed, Embase, the Cochrane Library, Web of Science, China National Knowledge Infrastructure (CNKI), Wanfang Database, VIP Database, and the China Biomedical Literature Database (CBM) to identify qualitative studies on symptom experiences among patients with cervical cancer. The search period ranged from database inception to July 2026. In addition, the reference lists of the included studies were manually screened to identify additional eligible studies. A combination of controlled vocabulary and free-text terms was used in the search strategy.

The English search terms included "Uterine Cervical Neoplasms," "Cervical Neoplasm," "Cervical Neoplasms," "Cervical Cancer," "symptom," "symptom experience," "experience," "attitude," "view," "perspective," "feeling," "psychology," "emotion," "phenomenon," "thought," "opinion," "perception," "need", "qualitative research," "qualitative study," "qualitative method," "narrative," "content analysis," "descriptive study," "discourse analysis," "ethnography," "grounded theory," "interview," "phenomenology".

The Chinese search terms included: "cervical cancer/cervical neoplasm", "symptom/symptom experience/experience/experience/attitude/view/coping/feeling/psychology/state/perspective/perception/need, and "qualitative research/phenomenological study/grounded theory/narrative research/ethnography/interview/descriptive study."

The detailed search strategy used in PubMed is presented in Fig. 1.

Eligibility criteria

The inclusion and exclusion criteria were developed based on the PICoS framework. The inclusion criteria were as follows: (1) Population (P): patients diagnosed with cervical cancer; (2) Phenomenon of Interest (I): symptom-related experiences, perceptions, and coping strategies among patients with cervical cancer; (3) Context (Co): the entire process of symptom experiences after diagnosis of cervical cancer, including hospitals, families, and communities; and (4) Study design (S): qualitative studies using research approaches such as phenomenology, grounded theory, and ethnography.

The exclusion criteria were as follows: (1) duplicate publications; (2) studies for which the full text was unavailable or data were incomplete; (3) non-Chinese or non-English publications and conference papers; and (4) mixed-methods studies in which qualitative data could not be extracted separately.

Data extraction

Two reviewers with training in qualitative research independently conducted the study selection and data extraction, and cross-checked the results. Any disagreements were resolved through discussion, and if consensus could not be reached, a third reviewer was consulted for the final decision. The study selection process was as follows: all retrieved records were imported into EndNote 20.6 software for duplicate removal. The titles and abstracts were screened according to the predefined inclusion and exclusion criteria, and studies irrelevant to the research topic were excluded. The full texts of potentially eligible studies were then assessed for final inclusion. The extracted data included the following information: author, publication year, country/region, study participants, research design/data collection methods, phenomenon of interest, context, and main findings.

The study selection process is presented in Fig. 2.

Methodological quality appraisal

Two reviewers who had received training in qualitative research independently appraised the methodological quality of the included studies using the Joanna Briggs Institute (JBI) Critical Appraisal Checklist for Qualitative Research developed by the JBI Center for Evidence-Based Health Care^[11]. The appraisal checklist consists of 10 items, with each item rated as “Yes,” “No,” “Unclear,” or “Not applicable.” For this review, studies were classified as Grade A, B, or C according to the predefined appraisal criteria. Grade A indicated that all appraisal criteria were fully met, with a low likelihood of bias; Grade B indicated that some appraisal criteria were met, with a moderate likelihood of bias; and Grade C indicated that the appraisal criteria were not met, with a high likelihood of bias. After the quality appraisal was completed, the two reviewers compared their assessments. Any disagreements were resolved by discussion, and if consensus could not be reached, a third reviewer was consulted for final adjudication. Studies rated as Grade A or B were included in the meta-synthesis.

The results of the methodological quality appraisal are presented in Table 1.

Table 1 Methodological quality appraisal of the included studies

Included studies	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	Rating
Mkuu et al.	Y	Y	Y	Y	Y	N	N	Y	Y	Y	B
Mwaka et al.	Y	Y	Y	Y	Y	N	N	Y	Y	Y	B
Mesafint et al.	Y	Y	Y	Y	Y	N	N	Y	Y	Y	B
Song et al.	Y	Y	Y	Y	Y	U	N	Y	Y	Y	B
Binka et al.	Y	Y	Y	Y	Y	N	N	Y	Y	Y	B
Christiansen et al.	Y	Y	Y	Y	Y	N	N	Y	Y	Y	B
Su Jianping et al.	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	A
Xiao Yuanyuan et al.	Y	Y	Y	Y	Y	N	N	Y	Y	Y	B
Zheng Chengcheng et al.	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	B
Kong Hefang et al.	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	B
Chen Guo et al.	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	B
Liu Suting et al.	Y	Y	Y	Y	Y	U	N	Y	Y	Y	B
Wang Dahua et al.	Y	Y	Y	Y	Y	N	N	Y	Y	Y	B

☒Is there congruity between the stated philosophical perspective and the research methodology?

☒Is there congruity between the research methodology and the research question or objectives?

☒Is there congruity between the research methodology and the methods used to collect data?

☒Is there congruity between the research methodology and the representation and analysis of data?

☒Is there congruity between the research methodology and the interpretation of results?

☒Is there a statement locating the researcher culturally or theoretically?

☒Is the influence of the researcher on the research, and vice versa, addressed?

☒Are participants, and their voices, adequately represented?

☒Is the research ethical according to current criteria or, for recent studies, is there evidence of ethical approval?

☒Do the conclusions drawn in the research report flow from the analysis or interpretation of the data?

Data synthesis

This study used a meta-aggregation approach to synthesize qualitative findings^[12]. By fully considering the philosophical perspectives and methodological approaches underlying the included qualitative studies, the researchers repeatedly read, analyzed, and interpreted the meanings of the findings. Similar findings were aggregated to develop categories, which were further synthesized into integrated findings to elucidate the symptom experiences of patients with cervical cancer throughout the disease trajectory.

Results

Literature selection and characteristics of the included studies

A total of 727 relevant records were identified through the systematic search. After duplicate records were removed using reference management software, 569 records remained. Following title and abstract screening, 37 records were retained for full-text assessment. After full-text screening, 13 studies were ultimately included in the meta-synthesis^[13-25]. The study selection process is presented in Fig. 2, and the characteristics of the included studies are presented in Table 2.

Table 2 Characteristics of the included studies

Included study (Author; Year; Country/Region)	Participants	Study design/Data collection method	Phenomenon of interest	Context	Main findings
Mkuu et al. ^[13] 2024 Kenya	Patients with cervical cancer aged 18 years and older (n=29)	Qualitative study /semi-structured interviews	To describe the symptom experiences of patients with cervical cancer and their experiences of receiving a cervical cancer diagnosis or treatment	Outpatient clinic	Three findings: 1.Delaying Seeking Care. 2.Misinterpreting or Misdiagnosing Symptoms. 3.Grappling With Costly and/or Long Diagnosis Process.
Mwaka et al. ^[14] 2015 Uganda	Patients with cervical cancer aged 35-56 years (n=18)	Qualitative study /semi-structured interviews	To explore the symptom experiences of patients with cervical cancer and gain an in- depth understanding of their symptom appraisal and help- seeking behaviors	A quiet room in the hospital	Four findings: 1.Initial symptom recognition. 2.Attribution of initial symptom/s. 3.Lay consultations and self- management. 4.Perceived personal risk of cervical cancer.
Mesafint et al. [15] 2018 Ethiopia	Patients with cervical cancer aged 25-67 years (n=12)	Qualitative study /in-depth interviews	To explore healthcare-seeking behaviors, early symptom recognition, and the major factors influencing healthcare-seeking decisions among women with cervical cancer	A private area in the hospital	Seven findings: 1.Awareness of cervical cancer. 2.Perceived etiology. 3.Perceived symptoms and signs of the disease. 4.Perceived benefit of cervical screening. 5.Perceived benefit of treatment. 6.Health seeking behavior. 7.Challenges experienced.

Included study (Author; Year; Country/Region)	Participants	Study design/Data collection method	Phenomenon of interest	Context	Main findings
Song et al. ^[16] 2025 China	Patients with cervical cancer aged 34-66 years (n=13)	Descriptive qualitative study /semi-structured interviews	To explore symptom clusters, symptom experiences, and self-management strategies among patients with cervical cancer undergoing concurrent chemoradiotherapy	A quiet office in the nursing department	Three findings: 1.struggle for survival among patients reintegrating into society. 2.overcoming self-management challenges. 3.resilience and adaptation in the face of adversity.
Binka et al. ^[17] 2018 Ghana	Patients with cervical cancer aged ≥30 years (n=15)	Qualitative study /in-depth interviews	To explore coping strategies among patients with cervical cancer	A secluded area of the hospital	Three findings: 1.Personal coping strategies. 2.Forms of support. 3.Health seeking behaviour after diagnosis.
Christiansen et al. ^[18] 2022 Denmark	Patients with cervical cancer aged ≥18 years (n=10)	Phenomenological study /face-to- face interviews	To explore how women with cervical cancer experience symptoms and manage everyday life during treatment	Oncology ward	Three findings: 1.new life perspectives. 2.suffering in silence. 3.enhanced symptom self- management strategies.

Included study (Author; Year; Country/Region)	Participants	Study design/Data collection method	Phenomenon of interest	Context	Main findings
Su Jianping et al. ^[19] 2024 China	Patients with cervical cancer aged 32-62 years (n=15)	Phenomenological study /semi-structured interviews	To explore the lived experiences of symptom clusters, distress caused by core symptom clusters, and symptom cluster management needs among patients with cervical cancer during the perioperative period	A quiet interview room	Three findings: 1.Themes three days before surgery in patients with cervical cancer. 2.Themes three days after surgery in patients with cervical cancer. 3.Themes three days before discharge in patients with cervical cancer.
Xiao Yuanyuan et al. ^[20] 2024 China	Patients with cervical cancer aged 28-70 years (n=12)	Phenomenological study /semi-structured in-depth interviews	To understand the experiences of fatigue-related symptom clusters and management needs among patients with cervical cancer undergoing concurrent chemoradiotherapy	A quiet psychological counseling room	Three findings: 1.substantial distress caused by fatigue-related symptom clusters. 2.individual differences in coping with fatigue-related symptom clusters. 3.high demand for management of fatigue-related symptom clusters.
Zheng Yingying et al. ^[21] 2020 China	Patients with cervical cancer aged 28-63 years (n=12)	Phenomenological study /semi-structured interviews	To explore symptom experiences and psychological feelings among patients with cervical cancer during recovery after radical surgery	A dedicated interview room	Four findings: 1.physical dimension. 2.psychological dimension. 3.family dimension. 4.social dimension.
Kong Hefang et al. ^[22] 2024 China	Patients with cervical cancer aged 23-80 years (n=17)	Qualitative study /semi-structured interviews	To explore symptom experiences and psychological feelings among patients with cervical cancer	A dedicated interview room	Three findings: 1.physical discomfort. 2.heavy psychological

Included study (Author; Year; Country/Region)	Participants	Study design/Data collection method	Phenomenon of interest	Context	Main findings
			during interstitial brachytherapy		burden. 3.difficulties related to family and social support systems.
Chen Guo et al. [23] 2024 China	Patients with cervical cancer aged 35-62 years (n=12)	Phenomenological study /semi- structured interviews	To understand the current status of symptom management among patients with cervical cancer after radical surgery	Ward teaching room or private room	Three findings: 1.symptom experiences. 2.current coping strategies. 3.support needs.
Liu Suting et al. [24] 2023 China	Patients with cervical cancer aged 25-70 years (n=14)	Qualitative study /semi-structured interviews	To gain an in-depth understanding of the psychological experiences and coping strategies of patients with cervical cancer throughout the treatment process	A quiet and comfortable environment within the department	Four findings: 1.adverse physical experiences. 2.negative psychological experiences. 3.individual differences in coping strategies. 4.needs during treatment.
Wang Qinghua et al.[25] 2022 China	Patients with cervical cancer aged 28-69 years (n=11)	Phenomenological study /semi- structured in- depth interviews	To understand the experiences and feelings of psychological distress among patients with cervical cancer undergoing concurrent chemoradiotherapy after radical surgery	A quiet and private room in the ward	Five findings: 1.the pervasive presence of psychological distress. 2.accompanying physical symptoms. 3.changes in experiences of psychological distress. 4.issues related to self-image and sexual life. 5.excessive financial burden.

Methodological quality appraisal of the included studies

The methodological quality of all 13 included studies was appraised, with one study rated as Grade A and 12 as Grade B. All studies met criteria 1-5 and 8-10. For item 6, two studies^[16,24] were rated “Unclear,” four studies^[19,21-23] were rated “Yes,” and the remaining studies were rated “No.” For item 7, only one study^[19] was rated “Yes,” while all other studies were rated “No.” Overall, the included studies were considered to have acceptable methodological quality and were therefore included in the final synthesis.

Meta-synthesis findings

A total of 13 qualitative studies were included. Through repeated comparison and integrative analysis, 48 findings were extracted and grouped into nine categories, which were further synthesized into four integrated findings. These integrated findings revealed the dynamic evolution and multidimensional impact of symptom experiences among patients with cervical cancer throughout the disease trajectory. The relationships between integrated findings and categories are shown in Fig. 3.

Integrated finding 1: Ambiguous and insufficient perception of cervical cancer symptoms

Category 1.1: Misinterpretation and neglect of early symptoms

Patients with cervical cancer often have difficulty accurately recognizing and interpreting bodily changes during the early stage of the disease. Symptoms such as abnormal vaginal bleeding, increased vaginal discharge, and postcoital bleeding are often attributed to menstrual irregularities, adverse effects of contraceptives, or other diseases. One patient explained, *“Sometimes, when I meet [sexual encounter] with my husband, blood comes out. I thought it might be the family planning medicines since I have used them for 17 years continuously, and I was not getting any periods. I did not take it seriously”*^[13]. Another patient recalled, *“Worries started when bleeding started to come with clots. The first thing that came to my mind was that my husband had given me syphilis”*^[14]. Such “normalizing interpretations” of symptoms may reduce patients’ perception of health risks, resulting in delays in seeking medical care and posing challenges to the early detection and intervention of cervical cancer.

Category 1.2: Biases in medical recognition and gaps in health education

Beyond individual cognitive biases, some patients also failed to receive timely referral or an accurate diagnosis during their initial medical visits, reflecting gaps in symptom recognition and diagnostic assessment during the initial medical encounter. One patient described repeated diagnostic uncertainty, *“The first time I was told it is UTI. The second time I was told the same. The third one, I was told by the doctor to go take a picture [X-ray] so as to see what’s the problem”*^[13]. Limited public health education and inadequate awareness of screening may further contribute to delays between symptom onset and diagnosis. One patient recalled, *“Initially, I came to Addis Ababa to attend Nephew’s Christening, I told my brother and his wife about my bleeding and decided to use the opportunity to have it checked. Then, first they took me to Zewditu Memorial Hospital where I got examined and referred to TikurAnbessa Hospital for treatment. Otherwise, I would have gone home as soon as the Christening is over as I didn’t realize I would be seriously ill”*^[15]. These experiences suggest that delays in symptom recognition, care-seeking, and referral may persist during the early stage of the disease, potentially hindering timely diagnosis and intervention.

Integrated finding 2: Multidimensional manifestations of cervical cancer symptom burden

Category 2.1: Complex clusters of physical symptoms

Patients with cervical cancer often experience multiple physical symptoms simultaneously, forming overlapping “symptom clusters.” Early symptoms such as abnormal vaginal bleeding and increased vaginal discharge can be

unpredictable and difficult to manage, while also causing substantial inconvenience and psychological distress. One patient described the burden of managing heavy bleeding: *"I used to change pads five to six times a day to contain the bleeding, which was very costly, and wash them frequently because the pads became very irritating when soaked with blood"*^[15]. Pain (*"Since chemotherapy, my abdomen always hurts"*^[19]) and fatigue (*"Radiotherapy made me feel extremely tired"*^[20]) were among the most common physical experiences and could interfere with patients' daily functioning. Disease-related sleep disturbances were also common and further aggravated fatigue, as one patient described, *"I had to go to the toilet every hour, so I could not sleep at all"*^[22]. In addition, urinary dysfunction, such as difficulty urinating and the management of indwelling urinary catheters, increased patients' daily burden and embarrassment: *"I did not know how to manage the urinary catheter after I went home"*^[21]. Gastrointestinal reactions during chemotherapy and radiotherapy were particularly prominent; one patient reported, *"Since I started chemotherapy, I have been vomiting uncontrollably a dozen times a day, no matter what I eat or drink"*^[16]. Overall, these symptoms often occurred in clusters and interacted with one another, constituting a substantial and persistent physical burden that severely affected patients' daily functioning and quality of life.

Category 2.2: Psychological and emotional burden

Patients with cervical cancer may experience stigma because the disease is associated with sensitive issues such as sexual activity and human papillomavirus (HPV) infection, leading some to conceal their illness. One patient explained, *"I did not tell anyone what disease I had because I was afraid that others would look at me differently"*^[19]. Others chose to endure the disease and its associated suffering in silence, as one patient described, *"I always say nothing and keep everything to myself"*^[18], which may further contribute to social isolation. Fear of disease recurrence remained a persistent concern, with one patient reflecting, *"Whenever I feel even a little uncomfortable, I wonder whether it might cause the cancer to recur"*^[25]. Treatment-related changes, including hair loss (*"My hair fell out completely within just one week"*^[24]), premature aging (*"After my ovaries were removed, I aged very easily"*^[25]), and sexual dysfunction (*"After treatment, I felt extremely dry down there, and sexual intercourse was very painful"*^[25]), challenged patients' sense of feminine identity and self-worth. One patient expressed feelings of inferiority, stating, *"I feel that I am no longer a woman"*^[19]. These changes also affected intimate relationships, giving rise to guilt and anxiety toward partners: *"The doctor said that we could not have sexual intercourse for three months, and I felt especially sorry for my husband"*^[19]. Some patients even experienced self-blame and depressive emotions, as reflected in the statement, *"I still have not accepted it. I feel that I am the sinner in my family"*^[19]. Overall, the disease and associated symptom experiences had profound psychological effects on patients' lives.

Category 2.3: Impairment of social roles and functioning

Treatment and recovery often require patients to take prolonged leave from work, which may diminish their sense of social value and self-identity. One patient expressed concern, *"Please take such a long leave, when I go back to the workplace, they will definitely no longer need me"*^[19]. Being unable to care for their children or manage household responsibilities also made it difficult for patients to maintain their roles as mothers, wives, or daughters, leaving them dependent on others and contributing to a strong sense of dependence and helplessness. One patient described this experience: *"But after this disease, I can not make money and need the care of my family. I am now a burden of my children"*^[16]. In addition, disease-related stigma associated with symptoms such as profuse vaginal bleeding could lead patients to withdraw from social interactions. One patient recalled, *"I had profuse vaginal bleeding which later changed into grey color and became unpleasant and offensive. When people came to visit me, I feel ashamed because I thought it smells for them as well"*^[15]. Some patients consequently reduced or completely withdrew from social activities, as one patient stated, *"I haven't left my house in a long time, and I don't want to go to a party with friends"*^[16]. Such withdrawal

may gradually disconnect patients from their social networks and deprive them of important sources of social support. Overall, disease- and symptom-related distress substantially impaired patients' social functioning and role identities, leaving their positions within the family and society increasingly uncertain and vulnerable.

Integrated finding 3: Self-regulation and coping with cervical cancer symptoms

Category 3.1: Individual adaptation and self-management

In response to persistent symptom distress, patients adopted diverse coping strategies. Some actively adjusted their lifestyles and psychological states, attempting to coexist with symptoms while maintaining their daily routines. For example, dietary modifications were used to alleviate constipation, as one patient reported, *"the doctor told me to eat more dietary fiber, such as potatoes, celery, to promote bowel movement"*^[16]. Attention to personal hygiene, together with the use of sanitary pads or disinfectants, was also adopted to manage vaginal discharge or incontinence. One patient described, *"After bathing, I always dropped some Dettol (disinfectant) in water and clean my vagina with it, then I put on some sanitary pad. I keep changing the sanitary pad from time to time so that I do not soil myself"*^[17]. Patients also used cognitive strategies to alleviate psychological distress, such as pretending to have recovered: *"To cope, I always tried to forget about the condition (cervical cancer) and pretend I was healed"*^[17], or attempting to "live with cancer" by accepting its presence. Some actively sought complementary approaches, including traditional Chinese medicine, as one patient recalled, *"I used to always feel tired, but later I learned qigong from my teacher, and I got better"*^[23], as well as herbal remedies: *"I went to the hospital, but unfortunately the bleeding became more, so I started looking for local medicines"*^[17]. Meanwhile, setting goals for daily life and actively cooperating with treatment helped strengthen patients' sense of self-efficacy. One patient stated, *"All I have to do now is actively cooperate with the doctors. When I encounter difficulties in the future, I should be very positive to face"*^[16].

Category 3.2: Reliance on and utilization of external support

Meanwhile, external support represented another important resource for coping with the disease. During this process, patients actively developed and relied on diverse external support networks. Support from family members helped alleviate the pressures of daily life and strengthened patients' confidence in coping with the disease. One patient explained, *"My husband takes care of everything at home now, and the children are also very obedient. I actually feel much more relaxed now"*^[24]. Sharing experiences with fellow patients also provided practical strategies and emotional resonance from others with similar experiences. One patient recalled, *"Whenever I feel exhausted and helpless, I talk with an experienced patient in the same ward. I learned from her roughly what my disease was like and what to expect"*^[20]. Professional guidance from healthcare providers helped alleviate anxiety, strengthen confidence in treatment, and provide patients with renewed direction for daily life and recovery. As one patient described, *"Doctor, after talking with you just now, I feel much more relaxed psychologically"*^[19].

Integrated finding 4: Care dilemmas and insufficient support in the experience of cervical cancer symptoms

Category 4.1: Practical barriers related to economic and care conditions

Beyond challenges at the individual level, patients' symptom experiences were also influenced by structural factors. High medical costs and inadequate insurance coverage imposed substantial financial pressure, leading some patients to delay or discontinue treatment because of financial constraints. One patient explained, *"Hospitalization is very expensive, and medical insurance does not fully cover the costs which is why I have decided not to continue with it"*^[16]. In addition, difficulties in accessing healthcare resources and repeated diagnostic procedures increased the burden of seeking medical care, with the processes of diagnosis and treatment often requiring multiple visits to different

healthcare facilities. One patient recalled, *"I had to go for an X-ray and get a biopsy removed and taken to Kenyatta, we waited on the results but they never returned. I went, and they took another biopsy and took me to another place"*^[13]. These financial and healthcare-access difficulties constituted important barriers to timely and continuous care.

Category 4.2: Gaps in information and support resources

Patients often occupy a disadvantaged position due to information asymmetry during the diagnosis and treatment process and have substantial information needs regarding disease progression, treatment-related adverse effects, symptom management, and recovery. One patient expressed the need for greater access to disease-related information, stating, *"I need nurses and doctors to tell me more about information related to this disease"*^[19]. Meanwhile, insufficient continuity of care after discharge left some symptoms without timely management in the home setting. One patient stated, *"The nurses did reach out to me, yet I had already been discharged quite some time ago. It would have been preferable if they had contacted me sooner should I experience any discomfort."*^[23] while patients also expressed a strong reliance on healthcare professionals for emotional comfort and health guidance, with one patient noting, *"Whenever I'm in need of comfort or health advice, I seek help from both doctors and nurses"*^[20]. However, existing healthcare models tend to focus primarily on disease treatment, with insufficient attention to the multidimensional support needed to maintain patients' quality of life. This gap in care may increase patients' uncertainty and psychological burden.

Discussion

Strengthening symptom recognition and risk awareness to promote early diagnosis and treatment

The findings of this meta-synthesis revealed that substantial cognitive biases and systemic delays were commonly present during the initial stage of symptom recognition. Patients' cognitive limitations and deficiencies in primary healthcare services were key factors contributing to delayed diagnosis^[26]. Previous studies have shown that diagnostic delay is closely associated with more advanced clinical stages and poorer prognosis^[27]. Therefore, future health education should adopt a two-pronged approach. First, public education on cervical cancer-related symptoms should be strengthened, particularly among high-risk populations, to improve symptom awareness and the ability to correctly interpret and attribute symptoms. Second, primary healthcare services should be optimized, with greater emphasis on strengthening primary healthcare professionals' ability to recognize early signs of cervical cancer and their awareness of timely referral. These efforts may shorten the interval between symptom onset and diagnosis and ultimately improve patient outcomes.

Implementing multidimensional symptom assessment and intervention to promote holistic care

The findings of this meta-synthesis demonstrated that patients with cervical cancer experienced a substantial symptom burden characterized by the interplay of physical, psychological, and social dimensions. This finding is consistent with that of Zhang et al.^[28], who reported that symptom clusters had significant effects on patients' physical functioning, emotional well-being, and quality of life. However, clinical practice continues to focus predominantly on the assessment and management of physical symptoms, with comparatively less attention given to psychological and social dimensions^[29]. Therefore, future nursing practice should strengthen the identification and management of psychological symptoms and potential problems related to social functioning, thereby adopting a holistic perspective of care. Nurses should proactively conduct psychosocial assessments and provide targeted support, integrating the patient-centered care philosophy into all aspects of clinical nursing practice.

Strengthening self-management support for symptom responses and promoting the transition to digital care

The findings of this meta-synthesis indicated that patients with cervical cancer adopted diverse strategies when coping with symptoms. Some patients relied on active self-management and self-adjustment, whereas others tended to seek external support. Previous research has shown that self-efficacy is an important factor influencing individuals' self-management^[30]. External support not only provides psychological support but also increases patients' confidence in coping with the disease, thereby contributing to the development and maintenance of self-efficacy. Therefore, nurses should recognize individual differences in patients' levels of self-efficacy and guide them to integrate self-adjustment with external support to enhance self-management capabilities and improve their ability to cope with disease- and symptom-related challenges. Building on these approaches, successful experiences such as that reported by Zivanovic et al.^[31] may be considered. In their study, the Patient-Reported Outcomes Measurement Information System (PROMIS) was used to monitor symptoms and provide timely interventions among patients undergoing ambulatory gynecologic surgery, resulting in improved patient outcomes. Building on the feasibility of digital symptom monitoring, future research could further explore the integration of artificial intelligence technologies to develop digital intervention tools that integrate symptom monitoring, health education, and self-management support. Such tools could be extended from hospitals to community and home settings, thereby facilitating continuous symptom management throughout the disease trajectory.

Establishing a multilevel social support system to alleviate structural barriers

The findings of this meta-synthesis showed that structural barriers, including financial burden, information gaps, and unmet support needs, had substantial impacts on patients. Previous research has demonstrated that social support is an important resource for coping with illness and is closely associated with better psychological adjustment and quality of life^[32]. Therefore, establishing a comprehensive multilevel social support system is essential. First, professional support: healthcare professionals should provide clear and consistent information and maintain effective communication. Their professional guidance can enhance patients' perceived social support and reduce the incidence of disease-related complications^[33]. Second, family support: family members should be encouraged to participate in care and provided with appropriate guidance. Family members' care and interaction can strengthen patients' willingness and confidence to undergo anticancer treatment^[34]. Third, peer support: patient support groups and online communities can be used to facilitate experience sharing and mutual encouragement. Peer support can alleviate psychological distress and anxiety among patients^[35]. Fourth, policy and social support: social support can effectively enhance patients' ability to cope with illness^[36], whereas financial burden is significantly associated with poorer quality of life^[37]. Therefore, coordinated efforts across multiple sectors are needed to establish a comprehensive support environment that enables patients to cope more effectively with the challenges associated with symptoms and treatment.

Conclusion

This meta-synthesis comprehensively revealed the challenges in early symptom recognition, multidimensional symptom burden, individualized coping strategies and diverse sources of support, and structural barriers within the healthcare system experienced by patients with cervical cancer throughout the disease trajectory. These findings suggest that healthcare professionals should not only strengthen public health education and awareness of early screening but also address patients' multidimensional challenges across physical, psychological, and social domains by providing continuous and integrated care and support. At the same time, clinical practice should focus on supporting patients in developing positive self-management behaviors and integrating family, social, and diverse cultural resources to enhance their overall capacity to cope with the disease. However, the qualitative studies included in this review were unevenly distributed across geographic and cultural settings, and some findings may have been shaped by specific sociocultural contexts. In addition, variations in the definition and expression of symptoms across

studies may limit the generalizability of the synthesized findings. Future research should incorporate empirical evidence from diverse geographic and cultural settings and adopt mixed-methods or longitudinal designs to further elucidate the dynamic evolution and underlying mechanisms of symptom experiences among patients with cervical cancer, thereby providing a basis for developing targeted and generalizable intervention strategies.

Abbreviations

HPV Human papillomavirus

JBI Joanna Briggs Institute

PICoS Population, Interest of phenomena, Context, and Study design

PROSPERO International Prospective Register of Systematic Reviews

PROMIS Patient-Reported Outcomes Measurement Information System

Declarations

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Not applicable.

Authors' contributions

J.M. and X.D. performed the literature search, screening of articles for inclusion, and quality appraisal of included studies. J.M. and Q.G. carried out the data extraction and meta-synthesis. J.M. led the writing of the manuscript. Y.Q. and Y.P.C. contributed to data interpretation and refinement of the synthesized findings. X.Q. and C.Y. reviewed and revised the manuscript. X.H. acquired the funding for this study. Y.Z. conceived and supervised the study, and critically revised the manuscript for important intellectual content. All authors have read and approved the submitted manuscript.

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Data availability

No datasets were generated or analyzed during the current study.

Ethics approval and consent to participate

Not applicable.

Consent for publication

Not applicable.

Competing interests

The authors declare no competing interests.

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Figures

Search number	Query
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Figure 1

Literature search strategy diagram

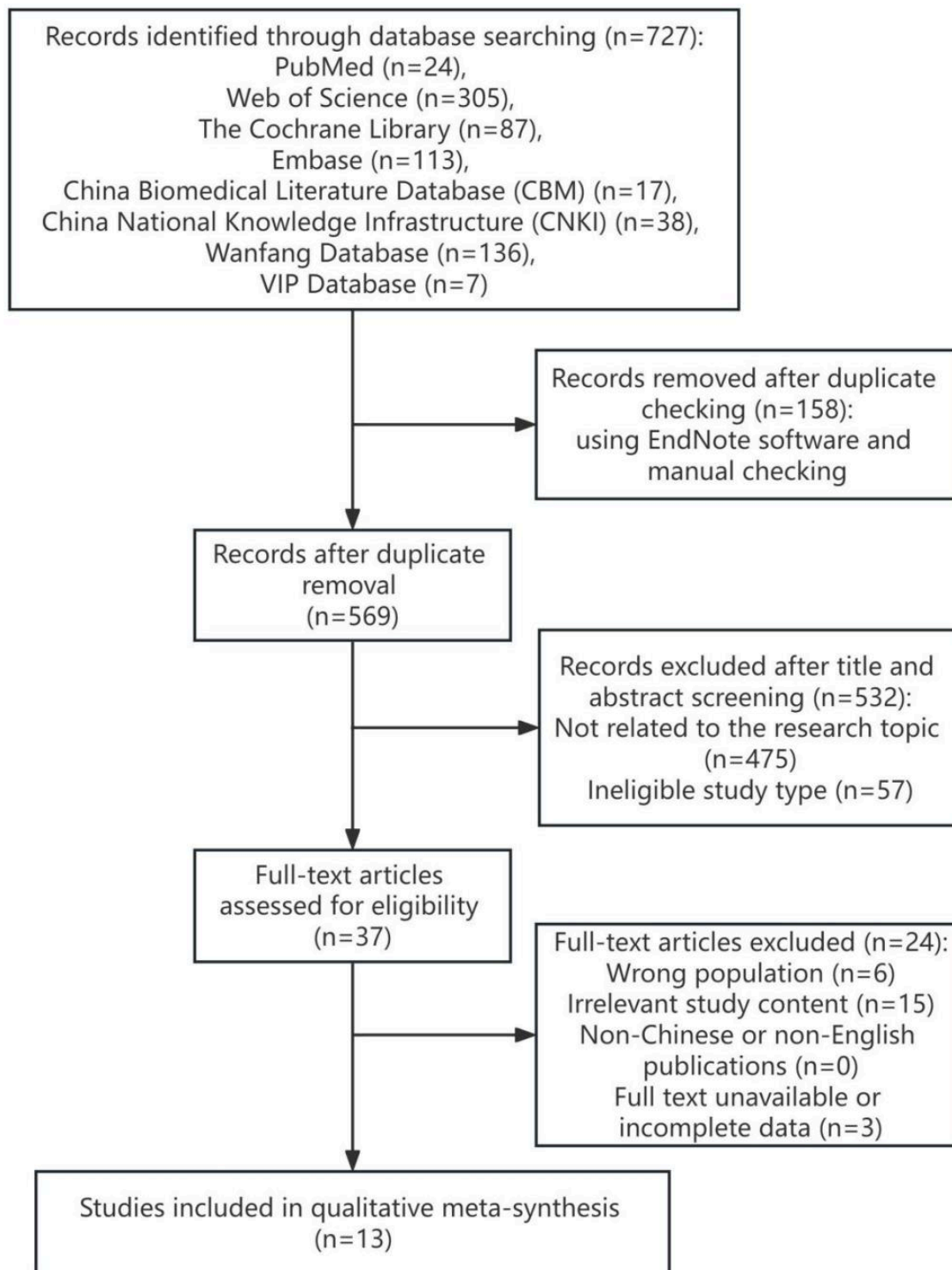


Figure 2

Flow of the literature searching and screening

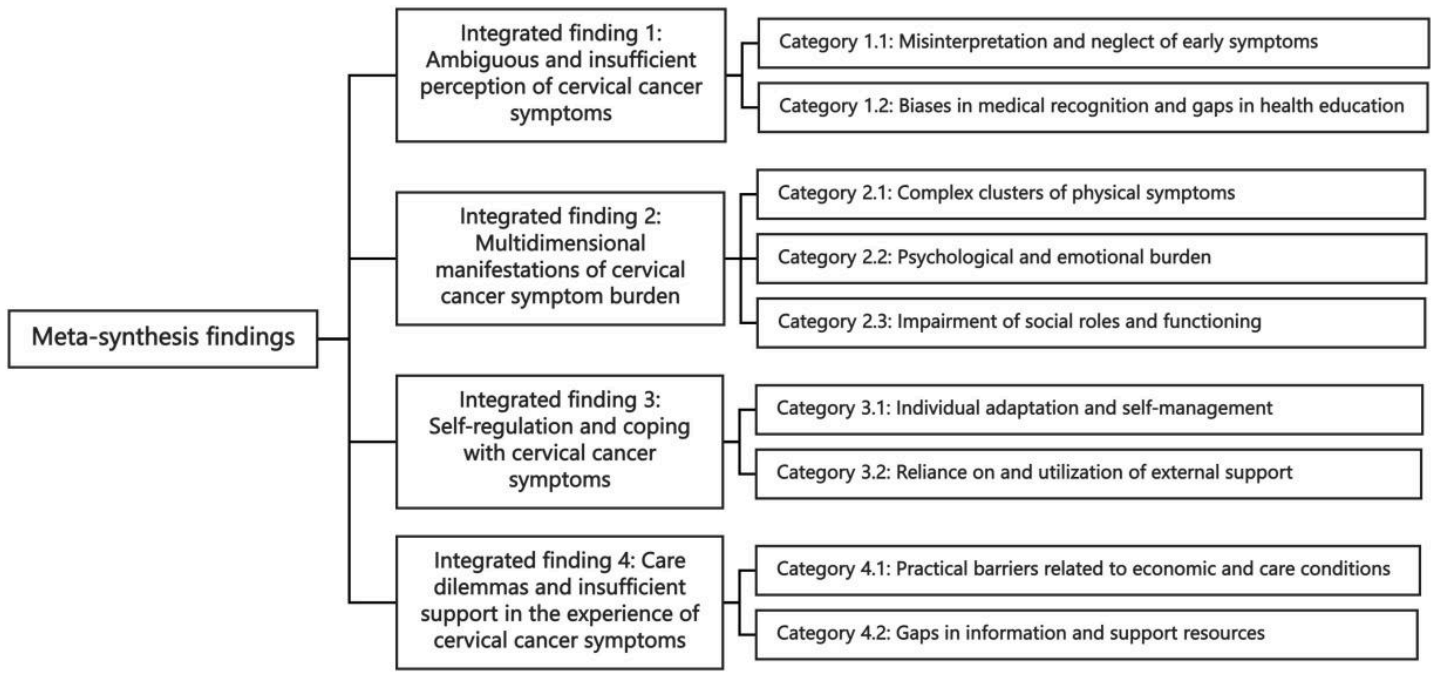


Figure 3

Structure of integrated findings and categories