Supplementary Material

Search strategy

Search as of:8 May 2025 (PubMed)		
Concept	Key words	Hits
#1Barriers	"Barriers"[Title/Abstract] OR "challenge"[Title/Abstract] OR "obstacles"[Title/Abstract] OR "hindrance"[Title/Abstract] OR "access barrier"[Title/Abstract] OR "financial barrier"[Title/Abstract] OR "geographical barrier"[Title/Abstract] OR "knowledge barrier"[Title/Abstract] OR "cultural barrier"[Title/Abstract] OR "social barrier"[Title/Abstract] OR "behavioural barrier"[Title/Abstract] OR "systemic barrier"[Title/Abstract] OR "communication barrier"[Title/Abstract] OR "psychological barrier"[Title/Abstract]	828,893
#2 Cancer	"Neoplasms"[MeSH Terms] OR "Cancer"[Title/Abstract] OR "cancers"[Title/Abstract] OR "cancerated"[Title/Abstract] OR "canceration"[Title/Abstract] OR "cancerous"[Title/Abstract] OR "cancer care"[Title/Abstract] OR "oncology"[Title/Abstract] OR "tumour"[Title/Abstract] OR "tumour"[Title/Abstract]	5,284,385
#3Northeast Region	"Northeast region"[Title/Abstract] OR "Northeast"[Title/Abstract] OR "northeast India"[Title/Abstract] OR "Assam"[Title/Abstract] OR "meghalaya"[Title/Abstract] OR "manipur"[Title/Abstract] OR "mizoram"[Title/Abstract] OR "tripura"[Title/Abstract] OR "arunachalpradesh"[Title/Abstract] OR "nagaland"[Title/Abstract] OR "sikkim"[Title/Abstract]	36,258
#1 AND #2 AND #3	("Barriers"[Title/Abstract] OR "challenge"[Title/Abstract] OR "obstacles"[Title/Abstract] OR "hindrance"[Title/Abstract] OR "access barrier"[Title/Abstract] OR "financial barrier"[Title/Abstract] OR "geographical barrier"[Title/Abstract] OR "knowledge barrier"[Title/Abstract] OR "cultural barrier"[Title/Abstract] OR "social barrier"[Title/Abstract] OR "behavioural barrier"[Title/Abstract] OR "systemic barrier"[Title/Abstract] OR "communication barrier"[Title/Abstract] OR "psychological barrier"[Title/Abstract]) AND ("Neoplasms"[MeSH Terms] OR ("Cancer"[Title/Abstract] OR "cancers"[Title/Abstract] OR "cancerated"[Title/Abstract] OR "canceration"[Title/Abstract] OR "cancerous"[Title/Abstract]) OR "cancer care"[Title/Abstract] OR ("oncology"[Title/Abstract] OR "tumour"[Title/Abstract] OR "tumour"[Title/Abstract])) AND ("northeast region"[Title/Abstract] OR "Northeast"[Title/Abstract] OR "northeast india"[Title/Abstract] OR "Assam"[Title/Abstract] OR "meghalaya"[Title/Abstract] OR "manipur"[Title/Abstract] OR "mizoram"[Title/Abstract] OR "tripura"[Title/Abstract] OR "arunachalpradesh"[Title/Abstract] OR "nagaland"[Title/Abstract] OR "sikkim"[Title/Abstract])	102

Data charting for of the study	
Data Charting form	
	Information to be filled
Title of the study	
Authors	
Publication year	
Doi	
Journal	
Study Design	
Study Objectives	
Country Name	
Findings	
Barriers and Facilitators to Accessing Cancer Care in the Northeast Region	
Socioeconomic Barriers to Cancer Screening and Treatment in Northeast India	
Health System Barriers to Cancer Screening and Treatment in Northeast India	
Logistical Barriers to Cancer Screening and Treatment in Northeast India	
Cultural Barriers to Cancer Screening and Treatment in Northeast India	
Geographical Barriers to Cancer Screening and Treatment in Northeast India	
Individual-Level Facilitators to Cancer Screening and Treatment in Northeast India	
System-Level Facilitators to Cancer Screening and Treatment in Northeast India	
Study strengths (If any)	
Study Limitations (If any)	
Conclusion	
Decision (Include/Exclude/Maybe)	
Reason (In the case of exclusion)	

Data Charting Table of the study (n=12)

Sl no	Study title	Objectives	authors	Place and year	Study design	Study population	Socio economic barriers	Health system barriers	Logistical barriers	Cultural barriers	Geographical barriers	Facilitators, Individual	System level facilitators
1	Mapping Choice of Healthcare Institutes for Cancer Care: A Study in Northeast India	To map and identify the sequence of visitation to institutes by patients with common cancers	Kuru et al[8]	Arunachal Pradesh, Assam,2023	multiple-embedded case study design with a mixed method approach	Key informants, cancer patients	74% initially sought care at private hospitals, later shifting to government hospitals due to cost and duration,	Multiple hospital visits (up to five, including out-of-state), Patients traveled outside the state for treatment, Poor awareness of in-state cancer services, Infrastructural deficits (lack of specialists, equipment), High waiting times at government facilities, Financial hardship despite insurance coverage, Uneven access to government insurance schemes		Use of alternate treatments like Ayurveda or herbal medicine,			
2	A qualitative study on ASHA workers' perspective on HPV self-sampling in Sikkim India	The study highlights the importance of tailored screening procedures, community engagement, and programmatic support in enhancing acceptance of HPV self-sampling. Addressing barriers requires multifaceted interventions at individual, community, and systemic levels.	Hariprasad *et al*[18]	Sikkim, 2023	Qualitative Study	ASHA	Women with low health literacy did not recognise the importance of screening for HPV.	ASHAs had to spend significant time and effort counseling women at home.	Transporting samples to the central lab was a significant challenge.	Family members refused to allow women to participate in self-testing. Women feared the testing process and effectiveness, especially the discomfort from inserting kit and scared of the brush included in the testing kits, fearing it might cause them harm.	-	At the individual level, key facilitators included the autonomy offered to women through home-based testing, which preserved their privacy and dignity by eliminating the need to expose private parts to healthcare providers. This approach empowered women and increased their willingness to participate by providing the flexibility to self-administer the test at their convenience. It also helped them avoid travel-related expenses, which was especially beneficial for those from economically disadvantaged backgrounds. Additionally, family support played a positive role in encouraging women to take part in the program.	At the system level, Accredited Social Health Activists (ASHAs) played a crucial role in ensuring participation by conducting health education campaigns using videos and pamphlets, and providing continuous counselling at both individual and community levels, including during Village Health and Nutrition Days. Their motivational strategies helped reinforce the importance of testing. Intersectoral collaboration with local leaders, panchayats, self-help groups, and NGOs further enhanced community engagement and program visibility. The use of mobile technology to transmit results and provide follow-up counselling for women who tested positive contributed to the smooth implementation of the program. Additionally, integrating the self-sampling initiative within existing community health platforms ensured greater reach and sustainability.

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3	Assessment of Knowledge and Screening in Oral, Breast, and Cervical Cancer in the Population of the Northeast Region of India	To determine the level of knowledge in cancer prevention; risk factors; and symptoms and signs of oral, breast, and cervical cancer in a cohort of the population eligible for cancer screening in the North East Region of India.	Oswal et al[19]	Assam, Meghalaya and Nagaland,2020	Cross sectional study	Household members	Only 21% of participants had heard about cervical cancer. 45% of participants were unaware of the appropriate age for testing. Only 43% correctly identified the testing age (20–49 years).	9% of those aware of cervical cancer had no information about where to go for screening.					
4	Barriers and facilitators in implementing population based common cancer screening through community health workers	To elicit the barriers and facilitators in implementing population based cancer screening through CHWs	Kedar et al[20]	Assam, 2018	Qualitative Study	Community Health Workers (CHW), women from the community	Refusal of services by wealthier families, Low community awareness,	From the CHWs: Difficulty motivating women which leads Linked to community resistance, misinformation, and systemic failures in outreach, Low incentives for CHWs, Insufficient support from supervisors, Overburdened with multiple responsibilities, Some CHWs unable to work due to age or health, Unrealistic community expectations, Difficulty motivating and training CHWs,	Lack of free transport for referrals	Lack of motivation due to absence of visible symptoms, Fear of cancer and fear of hospitals, Discomfort during procedure, shyness around exposing private parts, Personal and religious beliefs deterring testing, Preference for doctor-led screening at hospitals, Refusal from family members, Misinformation and negative experiences creating mistrust, Fear of screening tools like gloves and equipment	Difficult geographical terrain, Physical inaccessibility due to terrain or poor transport infrastructure.	The study identified individual and system-level facilitators that enhanced cervical cancer screening participation. At the individual level, women were motivated by awareness of symptoms, personal experiences, family support, trust in CHWs, privacy, and follow-up care. CHWs were empowered by financial incentives, personal screening experience, and peer influence.	System-level enablers included accessible home-based screening, effective referral systems, supportive supervision, teamwork, ANM support, CHW recognition, and training. Community trust and education also played a key role in improving screening uptake and program success.
5	Barriers in quest for cancer care access in two states of northeast India	To examine the barriers to cancer care in five common cancer sites: oral, lungs, stomach, breast and cervix	Kiru et al[21]	Arunachal Pradesh, Assam	Mixed Method study	Cancer patients	Seeking care outside the home state due to proximity, affordability, and second opinions, Financial constraints, OOPE, income loss, asset liquidation, Unawareness of state cancer institutes until after receiving costly care elsewhere	Lack of systemic financial support for cancer treatment, Dependence on family and NGOs for support, Referral due to lack of diagnostics, specialists, or inpatient care	No lodging facilities affecting treatment completion,	Family influence on treatment decisions, Opting for Homoeopathy, Ayurveda, herbal medicine due to fear of surgery/ chemotherapy, Delayed cancer care due to alternative treatments, Late-stage presentation among those who used unproven therapies first	Distance, transport difficulties,		

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6	Cancer Awareness and Stigma in Rural Assam India: Baseline Survey of the Detect Early and Save Her/ Him (DESH) Program	To identify knowledge gaps, misconceptions, and stigmas surrounding cancer diagnosis.	L.M Pak et al[22]	Assam, 2018	Baseline population survey	Residence of kamrup district	Low awareness of cancer symptoms and screening, Only 46.9% identified betel nut as a risk factor, 92.9% had never undergone cancer screening, Cost, fear, and denial as major barriers to screening,	Only 2.5% knew screenings were available in government hospitals, Only 1.2% were aware of community efforts		Misconceptions about causes (karma, evil spirits, divine will), Cancer perceived as socially and economically devastating, Belief that cancer harms career (56.2%) and relationships (40%), Stigma and discomfort (25.5% avoid patients, 18.4% feel uneasy discussing cancer)	Willingness to screen if local services are available (86.9%),	The findings reveal a high level of public support for cancer care, with both individual and system-level facilitators contributing to a positive attitude. At the individual level, participants expressed strong belief in the curability of cancer and recognised the importance of early detection, specialist consultation, and counseling in improving outcomes. A majority supported annual screenings and viewed caring for cancer patients as a societal responsibility	At the system level, there was widespread advocacy for increased government funding, equitable access to treatment, and prioritisation of cancer care in health policies, highlighting the public's commitment to strengthening cancer services.
7	Cancer patients' experience of oncology services in Assam, India	The aim of the study was to assess the experience of cancer patients in Assam	Oswal et al[23]	Assam,2021	Survey	Cancer patients	37% of patients delayed referral visits by 7+ days due to financial constraint, 69% reported financial constraints as the major barrier to diagnosis and treatment, Catastrophic out-of-pocket spending on travel, food, accommodation, and treatment	62% said insurance did not cover diagnostic/treatment adequately, 81% stated insurance excluded non-medical costs like travel/lodging, Only 50% received written discharge instructions, 82% reported lack of follow-up by CHWs or NGOs	Travel during monsoons was challenging due to seasonal issues affecting buses/trains	Only □50% felt emotionally supported by providers, 56% had no psychosocial support system during treatment distress,	15% of patients delayed care due to geographical distance, Poor transport infrastructure, worsened by monsoons	Despite existing challenges, several facilitators contributed to a positive patient experience in cancer care. At the individual level, patients reported high satisfaction with their first consultation, noting that providers were attentive, clear in communication, and respectful. Trust in healthcare professionals and confidence in clinical care were strong, especially when families were included in home care guidance.	At the system level, efficient registration processes, respectful staff behaviour, and effective communication about short-term treatment side effects were key enablers. While psychological support was limited, the quality of clinical care and provider responsiveness significantly enhanced patient satisfaction and treatment experiences.
8	Can financial incentives encourage women to participate in a cervical cancer screening programme? Evidence from a randomised controlled trial analysis	To evaluate the effectiveness of financial incentives as an intervention to encourage women to accept and participate in a cervical cancer screening programme.	Chowdary et al[24]	Assam, 2022	RCT	women						At the individual level, women who received financial assistance were 20.5 times more likely to participate, and those with favorable family attitudes were 31 times more likely, highlighting the importance of economic and emotional support. Significant predictors of screening uptake included age, religion, age at marriage, socioeconomic status, family support, and health risk factors.	The study found that both financial and social support significantly influenced cervical cancer screening participation in Assam.

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												While education, caste, and family type were not significant, the findings underscore that financial aid and strong family encouragement are key facilitators in enhancing early detection efforts in low-resource settings.	
9	Effect of health education on acceptance of human papilloma virus vaccine among parents of adolescent girls of Bishnupur, Manipur: A quasi-experimental study	This study was conducted to assess the acceptance of the HPV vaccine among parents of adolescent girls and to evaluate the effect of a one-on-one health education programme on the same	Dhinu et al[25]	Manipur, 2023	Quasi experimental design	Parents of Adolescent girls						At the individual level, perceived susceptibility to HPV and perceived benefits of vaccination increased markedly, while perceived severity rose slightly. Although perceived barriers remained unchanged, the intervention effectively improved attitudes toward vaccination. No socio-demographic variables were found to influence acceptance, highlighting that targeted health education alone can be a powerful facilitator in improving vaccine uptake and shifting community perceptions in favour of preventive health behaviour.	The study demonstrated that educational intervention significantly increased HPV vaccine acceptance, rising from 61.5% to 88.6%
10	Factors influencing delayed cancer health seeking in Meghalaya, Northeast India: A qualitative study	To investigate the barriers for healthcare seeking in cancer from patients, caregivers and healthcare providers (HCP)	Dkhar et al[26]	Meghalaya, 2021	Qualitative study	Cancer patients	Financial hardship and high out-of-pocket expenditure	Limited health insurance coverage, Health system deficiencies (*e.g.*, lack of services, referrals, poor infrastructure)		Cultural beliefs (*e.g.*, *bih* and *skai*) influencing delay in care, Stigma associated with cancer, Fear of diagnosis and treatment, Misinterpretation of early symptoms, Use of traditional medicine or self-treatment before seeking medical care, Reliance on family support for decision-making, Religious faith as a coping mechanism influencing decisions			

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11	Impact of COVID-19 on Cancer Patients: An Experience From a Tertiary Care Center in Northeast India	The present study was undertaken to assess the impact of COVID-19 on cancer patients, encompassing infection source, care type, treatment delays, and infection outcomes.	Kumar et al[27]	Meghalaya, 2022	Retrospective study	Cancer patients		Treatment delays (median of three weeks), Increased risk for patients with comorbidities, Risk of hospital-based COVID-19 transmission, Limited ICU availability during the pandemic					
12	Knowledge, Attitudes, and Beliefs About Breast Cancer and Barriers to Breast Self-Examination Among Sikkimese Women	The objectives of this study are to assess women's awareness on breast cancer; and their awareness, attitudes, and barriers to practice of breast self-examination (BSE)	Yambem and Rahman et al[28]	Sikkim, 2015	Cross sectional study	Women 18-65 years	80.6% were unaware of breast cancer risk factors, 51.1% did not know breast cancer symptoms, Only 46% were aware of breast self-examination (BSE), Only 41.3% practiced BSE, Awareness and BSE practice were significantly influenced by education, urban residence, and SES	Absence of guidance from healthcare providers,		Low perceived need for screening or BSE, Fear of diagnosis and discomfort with the process			