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RESEARCH ARTICLE

Knowledge, Attitude and Practice of Cancer Screening Among Women in Tamil Nadu, Southern India - A Qualitative Study

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Abstract

Background: Breast and cervical cancers represents major public health challenges globally, with considerable impact on women's health in India. Early detection through screening plays a critical role in improving survival rates and treatment outcomes. Understanding the knowledge, attitudes, and practices surrounding cancer screening is essential to develop effective, targeted interventions that can improve uptake and reduce the burden of these diseases. This study aims to explore these factors among women in Chennai, including both those diagnosed with cancer and non-cancer participants. **Methods:** This qualitative KAP study, conducted between October 2021 and May 2022, involved 189 purposively sampled women (with and without breast/cervical cancer) across five tertiary care institutions in Chennai. Thirteen Focus Group Discussions (FGDs) were conducted to assess participants' knowledge of cancer and screening, explore their attitudes toward prevention and early detection, and document their screening practices. Audio recordings were transcribed and analyzed using descriptive content analysis. **Results:** The findings revealed a generally low level of awareness, widespread misconceptions, and a diminished perception of personal risk, contributing to negative attitudes toward screening. However, screening behaviors were positively influenced by strong social support from peers and family, as well as by trusted media sources indicating these factors may help overcome some attitudinal barriers. **Conclusion:** Despite limited awareness and prevailing misconceptions, leveraging social support networks and accessible media presents a key opportunity for improving screening uptake. Public health initiatives should focus on strengthening knowledge, correcting misconceptions, and utilizing existing social and communication networks to enhance women's participation in cancer screening programs.

Keywords: Cancer Screening- KAP Study- Qualitative Research- Tamil Nadu- India

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Introduction

The rising mortality rates from breast and cervical cancers globally particularly in low- and middle-income countries have underscored the critical need for effective screening to support prevention and early detection. As per the 2020 data from the Global Cancer Observatory (GLOBOCAN), breast and cervical cancers were the top two leading causes of cancer-related deaths among women in India [1]. According to a population-based cancer registry report from 2012 to 2016, most breast and cervical cancer patients in India sought medical attention only after the disease had progressed to an advanced stage [2]. This delay in diagnosis likely contributes to the high mortality rates reflected in the GLOBOCAN data.

Recognizing the critical role of early detection in reducing incidence and mortality from breast and cervical cancers, the Indian government launched the National Cancer Control Programme, which later evolved into the National Programme for Prevention and Control of Cancer, Diabetes, Cardiovascular Diseases, and Stroke (NPCDCS). This initiative aims to provide accessible screening services for common cancers and other noncommunicable diseases through the public health

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system [3]. Specifically targeting women aged 30 to 65, the programme offers free cancer screening every five years, supported by trained frontline health workers who facilitate referrals. A continuum of care is maintained across primary health centers, community health centers, district hospitals, and tertiary institutions. Screening services are offered at no cost, with expenses shared between the central and state governments. Despite these efforts, findings from the NFHS-5 (2019–2021) indicate that only 1.9% of women had ever been screened for cervical cancer, and just 0.9% had undergone breast cancer screening [4].

In Tamil Nadu, with a cancer incidence rate of 84.2 per 100,000 people and higher rates among women, improving cancer screening uptake is crucial [5]. Understanding the socio-cultural and health system factors that influence women's decisions to participate in screening programs is essential. This study aims to explore Indian women's perspectives on breast and cervical cancer screening, identifying barriers and facilitators to inform targeted public health interventions and improve screening rates.

Materials and Methods

This qualitative Knowledge, Attitude, and Practice (KAP) study was conducted from October 2021 to May 2022 across five tertiary healthcare institutions in Chennai, India. A total of 189 participants were recruited through purposive sampling, including women diagnosed with breast or cervical cancer (categorized stage-wise using the TNM classification system) and non-cancer participants. The non-cancer group included women who either had never undergone screening or had previously been screened and found negative, based on self-report and verified through outpatient records wherever available. Stratification ensured diversity in experience and background related to cancer screening and care.

Following informed consent, participants were enrolled in Focus Group Discussions (FGDs), with a total of 13 FGDs conducted. Discussions aimed to assess participants' knowledge of breast and cervical cancers and their screening procedures, explore attitudes toward cancer prevention and early detection, and document screening practices prior to diagnosis (in the case of patients) or during routine health checks (in the case of non-cancer participants).

Interviews were conducted in either Tamil or English, depending on the participant's language preference, and facilitated by trained qualitative researchers. All sessions were audio-recorded, and relevant clinical details were verified through medical records where applicable. Transcripts were prepared in English immediately after each session and were thoroughly reviewed for accuracy and completeness.

The data were analyzed using descriptive content analysis, guided by the frameworks of Creswell and Plano Clark (2007) and Kvale (2007) [6]. Transcripts were read multiple times to identify initial codes related to knowledge, attitude, and practice. Coding was performed manually by two independent researchers using an inductive approach. Similar codes were grouped into categories and overarching themes. To ensure inter-coder reliability, discrepancies were resolved through regular discussions and consensus-building. Coding matrices were maintained using spreadsheets to track emerging patterns systematically.

Themes were interpreted through a social constructivist lens to understand how cultural, social, and individual factors influence women's engagement with cancer screening. The findings are reported in accordance with the Consolidated Criteria for Reporting Qualitative Research (COREQ) guidelines (Tong, Sainsbury, & Craig, 2007) [6]. Expert reviewers in qualitative research reviewed the analysis to ensure credibility and methodological rigor.

Results

Table 1 outlines the socio-demographic characteristics of the study participants, comprising 89 cancer patients (48 with breast cancer and 41 with cervical cancer) and 100 non-cancer participants. Most breast cancer patients were aged between 41–50 years (35%), while the majority of cervical cancer patients were in the 51–60 years age group (39%). Among non-cancer participants, 44% were aged 41–50 years, followed by 39% in the 31–40 years group.

A considerable proportion of cancer patients were from rest of Tamil Nadu (60.6% breast, 51.4% cervix), whereas most non-cancer participants (65%) were from Chennai and its suburban areas. Half of the cancer patients resided in rural areas, in contrast to only 35% of the non-cancer group. Illiteracy was more prevalent among cervical cancer patients (46%) compared to breast cancer patients (25%) and non-cancer participants (30%). Most women in all groups were homemakers or daily wage workers, with cervical cancer patients showing a higher percentage of daily wage employment (56%). Similarly, the majority of spouses were employed as daily wage laborers.

Over half of all participants reported a monthly family income between ₹5,000–₹15,000. Notably, 27% of breast cancer patients reported having no income. The majority of participants were married, though 22% of cervical cancer patients reported being deserted. Consanguineous marriage was more common among cervical cancer patients (56%) than in other groups.

Regarding medical history, 71% of breast cancer patients reported no comorbidities, compared to 56% of cervical cancer patients. Diabetes was more commonly reported among cervical cancer patients, while hypertension and other ailments showed relatively lower and similar prevalence across groups. A family history of cancer was reported by 27% of breast cancer patients, 7.3% of cervical cancer patients, and 10% of non-cancer participants.

Knowledge

The responses highlight a significant lack of awareness regarding cancer screening procedures among participants. Many were unaware of the necessity and purpose of screening in the absence of symptoms, indicating limited understanding of preventive healthcare. This knowledge

Table 1. Socio – Demographic Characteristics of Study Participants

Socio-demographic variables		Cancer Patients (n=89) (%)		Non – Cancer (%)
		Breast cancer patients (n=48)	Cervix cancer patients (n=41)	Participants (n=100)
	21 – 30	1 (2)	-	3 (3)
	31 – 40	7 (14.6)	3 (7.3)	39 (39)
Age (In years)	41 – 50	17 (35)	11 (27)	44 (44)
	51 – 60	15(32)	16 (39)	12 (12)
	61 – 70	8 (16.6)	10 (24.4)	2 (2)
	>70	-	1 (2.4)	-
	Chennai and its suburban	17 (35)	18 (44)	65 (65)
	Rest of Tamil Nadu (Incl. North, Central & South)	29 (60.6)	21 (51.4)	33 (33)
Residing Location	Outside TN (Andhra Pradesh & Puducherry)	2(4.2)	2 (5)	2 (2)
Place of residence	Rural	24 (50)	23 (56)	35 (35)
	Urban	24 (50)	18 (44)	65 (65)
	Uneducated	12(25)	19 (46)	30 (30)
	Primary school	8 (16.6)	4 (9.8)	14 (14)
	Middle school	15 (31)	14 (34)	16 (16)
	High school	7 (14.6)	2 (5)	22 (22)
	Higher Secondary/ Intermediate/ Diploma	3 (6.2)	2 (5)	11 (11)
Literacy (Self)	Graduate	3 (6.2)	-	6 (6)
	Profession & Honours	-	-	1 (1)
Occupation (Self)	Homemakers	28 (58)	18 (44)	50 (50)
	Daily wage workers	20 (42)	23 (56)	44 (44)
	Clerks	-	-	3 (3)
	Professionals	-	-	3 (3)
	Unemployed	13 (27)	12 (29.3)	37 (37)
	Daily wage workers	28 (58)	29 (71)	57 (57)
	Clerks	5 (10.4)	-	4 (4)
Occupation (Spouse)	Technicians and associated professionals	1 (2)	-	2 (2)
	Legislators, Senior Officials and Managers	1 (2)	-	-
Monthly income (Family)	Nil	13 (27)	5 (12.2)	30 (30)
	< 5,000	2 (4.2)	4 (9.8)	6 (6)
	5,000 – 15,000	28 (58)	29 (71)	56 (56)
	>15,001	5 (10.4)	3 (7.3)	8 (8)
	Unmarried	2 (4.2)	-	1 (1)
Marital status	Married	38 (79)	31 (76)	84 (84)
	Deserted	6 (12.5)	9 (22)	11 (11)
	Separated	2 (4.2)	1 (2.4)	4 (4)
Consanguinity	Yes	11 (23)	23 (56)	34 (34)
	No	37 (77)	18 (44)	64 (64)
Underlying medical conditions	Nil	34 (71)	23 (56)	65 (65)
	Diabetes Mellitus	6 (12.5)	12 (29.3)	19 (19)
	Hypertension	4 (8.3)	3 (7.3)	8 (8)
	Other ailments	4 (8.3)	3 (7.3)	8 (8)
Family history of cancer	Yes	13 (27)	3 (7.3)	10 (10)
	No	35 (73)	38 (93)	90 (90)

*Northern Tamil Nadu (TN) – Chengalpattu, Cuddalore, Thiruvarur, Kanchipuram, Kallakurichi, Thirupattur, Tiruvannamalai, Tiruvallur, Dharmapuri, Kalpakkam, Salem, Vellore, Krishnagiri, Neyveli, Villupuram. **Central Tamil Nadu (TN) – Nagapattinam, Kumbakonam, Mayiladuthurai, Pudukkottai, Tiruchirappalli, Dindugal. ***Southern Tamil Nadu (TN) - Karaikudi, Sivagangai, Theni, Ramanadhapuram, Tirunelveli, Madurai.

gap may delay diagnosis and reduce treatment efficacy, especially for cancers like breast and cervical cancer that are detectable through screening.

Attitude

Participants expressed misconceptions and a low perception of personal risk, which shaped their attitudes toward screening. Some believed that only unhealthy lifestyles lead to cancer and that healthy individuals do not require screening. Fear and anxiety related to the screening process were also reported, although these concerns diminished when participants received adequate information and support. These attitudes underline the need for culturally sensitive communication strategies and personalized counselling.

Practice

Despite barriers in knowledge and attitude, several facilitators of screening behavior emerged. Workplace conversations and peer influence encouraged screening, especially among working or educated women. Family support, particularly from younger members, motivated older women to undergo screening. Furthermore, mass media and trusted health professionals were key sources of motivation, highlighting the importance of leveraging interpersonal networks and communication channels to promote screening behavior (Table 2).

Discussion

This study aimed to examine the understanding of breast and cervical cancer screening among women in rural and urban areas of India, their attitudes toward these cancers, and the practices they follow to uncover the reasons behind their participation or avoidance of screening.

Concordance of Low Awareness with Existing Literature

The findings of this present study, conducted in Chennai, Tamil Nadu, India, consistently reveal a significant paucity of awareness regarding breast and cervical cancer screening procedures among the participant cohort. This observation aligns substantively with prior scholarly investigations. Notably, Almaz Tadesse et al. [7] identified a lack of information as the primary deterrent to cervical cancer screening attendance. Similarly, Lovemore Makurirofa et al. [8] documented a deficiency in comprehensive knowledge concerning both breast and cervical malignancies. Furthermore, the systematic review by Meshkani et al. [9] corroborates this trend, indicating a widespread pattern of inadequate knowledge pertaining to cancer screening practices among women across various settings. These convergent results underscore a persistent need for targeted educational interventions.

Alignment of Misconceptions and Risk Perception with Prior Findings

The prevalence of misconceptions and a diminished perception of personal vulnerability observed within our study population is consistent with attitudinal barriers identified in prior research. Specifically, Lovemore Makurirofa et al. [8] established a significant inverse relationship between perceived personal risk and screening participation. This suggests that when individuals perceive themselves as having a low likelihood of developing cancer, the motivation to engage in preventive screening measures is significantly reduced. The study by Ananth Srinath et al. [10] also highlighted the role of inaccurate beliefs in negatively shaping attitudes towards screening,

Table 2. Discusses on the Themes and Illustrative Responses from the Study Participants

Domain	Theme	Illustrative Participant Response
Knowledge	Lack of Awareness on Cancer Screening and Procedures	"I had no known discomfort or any complaints then and I did not think I should undergo them" – (Stage III breast cancer patient)
		"I had no idea what they were doing or going to do and I thought it was unnecessary for me to go and get it done" – (Stage IV Cervix cancer patient)
Attitude	Misconceptions and Low Risk Perception	"I thought if I do something, only then I may get cancer and I live a healthy life, so why go and get yourself checked when you know you are healthy" – (non-cancer participant)
Practice	Peer Influence and Workplace Awareness	"I heard my office colleagues discussing about how essential it is to get your breast screened for cancer once you reach 40 years of age and wanted to get myself checked as a precaution" (Stage II Breast cancer patient)
	Family Support as Motivation	"My son motivated me to get checked as he read about the importance of screening for cancer in some social media and he only took me to this PHC where they explained to me the procedure. Though I was really scared, they explained me everything and helped me to get myself checked with ease" (Non-cancer participant)
	Influence of Media and Health Information	"I saw about this on TV where a lady doctor said women who have any abnormal signs of bleeding or discharge post menopause should get themselves screened for cancer as prevention. She also explained how much screening can help early detection of cancer and can cure the disease. I immediately thought it was a great thing and the next day I and my sister got ourselves tested" (Stage I Cervix cancer patient).

potentially contributing to this diminished sense of personal vulnerability. These findings emphasize the importance of addressing erroneous beliefs and fostering a more accurate understanding of individual susceptibility in interventions aimed at enhancing screening uptake.

Contrasting Findings on the Knowledge-Practice Relationship: *The Role of Facilitators in Driving Practice*

While some prior research, such as the systematic review by Akanksha Pal et al. [11], reported a disconnect between breast cancer awareness and the practice of screening, and Venkata Nanda Kumar et al. [12] similarly observed that even good knowledge and positive attitudes did not consistently lead to actual screening behaviour, the findings of this present study show a different pattern. In our study, screening practices were more commonly followed even though there were clear gaps in knowledge and negative attitudes. This difference may be due to regional factors, such as Tamil Nadu's stronger public health infrastructure and active community engagement. It could also be related to differences in research design, as our qualitative approach allowed us to explore specific local reasons such as peer support, family encouragement, and influence from media that may not be captured through large surveys. These practical motivators appear to play an important role in encouraging screening, even when formal knowledge is lacking.

Challenges in NP-NCD Implementation in Tamil Nadu

Despite the provision of free screening services under the NP-NCD program, the low screening rates observed suggest the presence of systemic and socio-cultural barriers. Limited awareness about the availability and importance of screening, Negligence, Embarrassment, social stigma and lack of perceived risk contribute significantly to underutilization. Health system-related factors, Lack of trust in hospitals and doctors, Poor accessibility due to geographical location, may influence the overall effectiveness of service delivery. Additionally, screening services are often not integrated into routine health visits, making proactive participation less likely. These factors highlight the need for strengthening outreach, integrating screening into maternal and reproductive health services, and training community health workers to proactively promote early detection [13].

Facilitating Factors: Potential Avenues for Intervention

The identification of peer support, familial encouragement, and accessible health information channels as potential facilitators of screening engagement in this present study, a finding corroborated by Ananth Srinath et al. [10], suggests promising avenues for intervention. While these enabling factors were not the primary focus of the other cited studies, their consistent emergence highlights the potential utility of leveraging social networks and targeted communication strategies to promote screening uptake.

Practical Interventions

Based on the facilitators identified in this study such as peer influence, family support, and media exposure targeted interventions can be designed to improve cancer screening uptake. Community health workers can play a vital role by conducting awareness drives at the household and village level, especially in rural areas. Media campaigns featuring local influencers, including regional celebrities and respected healthcare providers, can help reduce stigma and increase acceptance. Additionally, integrating cancer education modules into schools and women's self-help group meetings can create early awareness among adolescent girls and young women, fostering long-term behavioral change.

In conclusion, this study reveals a notable prevalence of limited awareness and inaccurate beliefs pertaining to breast and cervical cancer screening among the study population. Despite these identified cognitive and attitudinal barriers, the observed engagement in screening practices appears to be significantly influenced by robust social support mechanisms, encompassing peer networks and familial encouragement, alongside the impactful role of trusted health information disseminated through accessible media channels. These findings underscore the intricate interplay between individual-level cognitive factors and broader socio-environmental determinants of preventive health behaviors. To optimize cancer screening uptake and enhance public health outcomes, interventions should adopt a multi-pronged approach. Policy enhancements to the NPCDCS program should consider integrating cancer screening efforts with existing maternal and child health services to increase outreach and reduce missed opportunities for early detection. Additionally, decentralized screening services at the primary health center (PHC) level, supported by trained community health workers, can improve accessibility and ensure timely follow-up, especially in underserved and rural areas.

Ethical Consideration

Approved by Institutional Ethical Committee.

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Conflict of Interest

None Declared.

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