

Dissertation Training
at
Integra Ventures Services Private Limited

To assess the impact of community outreach, patient support interventions, and caregiver sensitization programs on cancer awareness among residents of Barpeta and Dibrugarh districts of Assam.

By

Ms. Komal Porwal

PG/23/050

Under the guidance of

Dr. Ratika Samtani

PGDM (Hospital and Health Management) 2023-25



International Institute of Health Management Research
New Delhi

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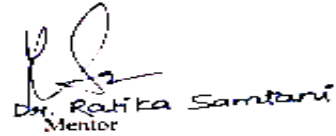
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Barpeta and Dibrugarh districts of Assam**

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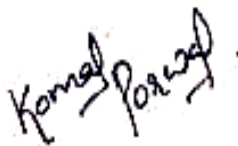

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This dissertation has the requisite standard and to the best of our knowledge no part of it has been reproduced from any other dissertation, monograph, report or book.



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List of Abbreviation

Abbreviation	Full Form
ACCF	Assam Cancer Care Foundation
ANM	Auxiliary Nurse Midwife
ASHA	Accredited Social Health Activist
BMC	To be confirmed from context
CBAC	Community Based Assessment Checklist
CBE	Clinical Breast Examination
CRP	C-Reactive Protein
DALY	Disability Adjusted Life Year
DNA	Deoxyribonucleic Acid
ECD	Early Childhood Development
FGD	Focus Group Discussion
HPV	Human Papillomavirus
ICDS	Integrated Child Development Services
IDI	In-Depth Interview
IEC	Information, Education, and Communication
KAP	Knowledge, Attitude, and Practice
KII	Key Informant Interview
MoHFW	Ministry of Health and Family Welfare
NCD	Non-Communicable Disease
NGO	Non-Governmental Organization
OPD	Outpatient Department
PAP	Papanicolaou Test
SDG	Sustainable Development Goal
VIA	Visual Inspection with Acetic Acid
WHO	World Health Organization

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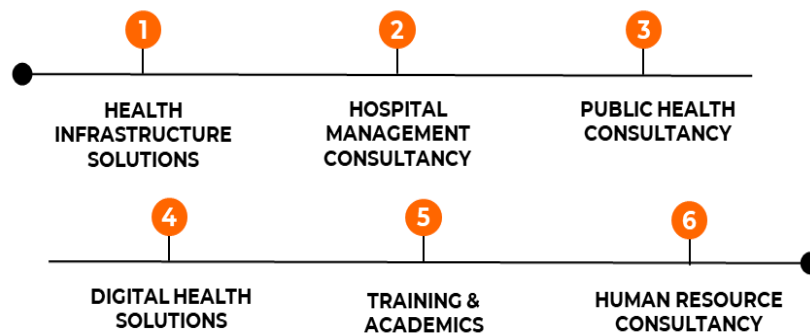
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About Organization

About Integra Ventures (IV)

Healthcare is undergoing a fast transition and with its inequitable distribution, non-standardized delivery and expensive care models what is required is aggressive transformational strategies and initiatives without disrupting ongoing operations with an innovative approach. For more than a decade, premier healthcare organizations including public sector bodies have trusted **Integra Ventures (IV)** to help ensure the execution of their strategic projects and important initiatives. IV is a multifaceted healthcare projects and management consultancy and execution firm established in 2012, delivering integrated turnkey solutions to the diversified healthcare industry enabling our clients achieve desired results across our service domains comprising of:



We work with proprietors, corporates, trust foundations, governments, civil societies, multilateral/bilateral agencies & impact funds, across diverse domains. **Integra Ventures have rich experience of working across North east India since 2012 both in the Public and the Private sectors in the above-mentioned service domains.** This experience shall help IV to deliver the necessary services in a more effective manner across the north-eastern geographies under the ambit of this project. **We are a team of 85+ in- house multisectoral professionals has successfully planned and executed 400+ diverse projects in both the Public and Private Healthcare Sector.**

With over a decade of experience Integra has the right mix of skills and experience needed to make a meaningful contribution to the overall functional areas of public health and social development initiatives. We have a pan India presence with international footprints in Uzbekistan, Bangladesh, Nepal and Kenya. With a wide diversity of talent pool, skill set and experience Integra is poised to carry out a wide variety of research interventions and evaluation studies with an international standard and premium quality. The team at Integra comes from different academic backgrounds needed to efficiently fit into the huge variety of projects that come under the large domain of development programmes.



Project Title

To assess the impact of **community outreach, patient support interventions, and caregiver sensitization** programs on cancer awareness among residents of Barpeta and Dibrugarh districts of Assam.

Introduction

Cancer continues to be one of the leading causes of illness and death worldwide, with notable differences in incidence and mortality across regions. In 2022, around 20 million new cases were reported globally, and about 9.7 million people lost their lives to the disease.¹

By 2050, the number of new cancer cases is projected to reach 35 million, largely driven by population growth and aging. The most frequently diagnosed cancers are breast, lung, colorectal, and prostate, with lung cancer remaining the leading cause of cancer-related deaths².

In India, the estimated number of new cancer cases in 2022 was approximately 1.46 million, with a crude incidence rate of 100.4 per 100,000 individuals. The incidence was higher among females (105.4 per 100,000) compared to males (95.6 per 100,000)³. In India, breast and cervical cancers are the most common among women, while cancers of the lip, oral cavity, and lung are most prevalent among men. Mortality rates differ across states, with Arunachal Pradesh, Assam, and Uttar Pradesh reporting higher rates, ranging from 47 to 176 per 100,000 population.⁴



Assam, located in Northeast India, bears a disproportionately high cancer burden compared to the national average. The highest cancer incidence and mortality rates are observed in the north-eastern states of the country, including Assam. The incidence of cancer in Assam is 114 per 1 lakh population, compared to the national average of 97.⁵ Assam contributes more than 32,000 of the nearly 45,200 new cancer cases reported each year in Northeast India. Tobacco-related cancers make up 57% of all cancers among men and 28% among women. The region also shows a higher prevalence of cancers affecting the upper digestive tract.⁶ Notably, Kamrup Urban District in Assam has a mortality-incidence ratio of 26.5%, with higher rates in males (30.7%) compared to females (20.9%).⁷

The cancer screening and tobacco usage scenario in Barpeta and Dibrugarh districts of Assam reflects a concerning trend of low preventive healthcare utilization despite high-risk behaviour, though efforts by the Assam Cancer Care Foundation (ACCF) are making strides in addressing this gap. According to NFHS-5 (2019-20), screening rates for cervical, breast, and oral cancer among women aged 30-49 remain critically low in both districts. In Barpeta, only **0.7% of women have undergone cervical cancer screening, 0.2% have had a breast examination, and 0.0% have undergone an oral cavity examination.** Dibrugarh fares similarly poorly, with **no cervical cancer screening, 0.2% breast cancer screening, and 0.5% oral cancer screening.**

¹ <https://www.cancer.org/research/cancer-facts-statistics/global-cancer-facts-and-figures.html>

² <https://acsjournals.onlinelibrary.wiley.com/doi/10.3322/caac.21834>

³ <https://pmc.ncbi.nlm.nih.gov/articles/PMC10231735/>

⁴ <https://bmccancer.biomedcentral.com/articles/10.1186/s12885-024-13035-6>

⁵ <https://www.tatatrusters.org/Upload/PDF/cancer-care-a-new-paradigm.pdf>

⁶ <https://bmccancer.biomedcentral.com/articles/10.1186/s12885-024-13035-6>

⁷ <https://www.siemens-healthineers.com/perspectives/medical-services-northeast-india>

In recent years, Assam has witnessed efforts to strengthen cancer control through multi-sectoral initiatives involving state institutions and non-governmental partners. **The Assam Cancer Care Foundation (ACCF)**, in collaboration with Tata Trusts and the Government of Assam, has launched a structured program aimed at enhancing access to cancer care across the state. As part of this initiative, community outreach programs, patient support interventions, and caregiver sensitization programs have been implemented in districts like Barpeta and Dibrugarh, targeting increased awareness, early diagnosis, and improved caregiving practices.

With the support of ACCF, an impact assessment of these interventions will be undertaken to evaluate their effectiveness at the community level. The assessment will examine their reach, influence on health-seeking behaviours, improvements in knowledge among patients and caregivers, and overall contribution to cancer control efforts. The findings will provide evidence to guide future planning, adaptation, and scaling of such interventions in similar socio-cultural contexts.

The program conducted 137 awareness camps, sensitizing 4,903 individuals. ASHA workers screened 308,922 people in door-to-door campaigns, referring 68,037 for further evaluation at Health and Wellness Centers (HWCs). To strengthen early detection, The program also empowered over 3,345 caregivers with knowledge of treatment modalities, government healthcare schemes, and home care techniques. ACCF provided diagnostic and treatment support to alleviate out-of-pocket expenses and reduce the risk of treatment discontinuation. This comprehensive approach has significantly strengthened cancer care delivery in the targeted districts.

Aim Statement

To assess the impact of **community outreach, patient support interventions, and caregiver sensitization** programs on cancer awareness among residents of Barpeta and Dibrugarh districts.

Research Objective

- 1. To evaluate the effectiveness of community outreach programs in increasing cancer awareness among residents of Barpeta and Dibrugarh districts.*
- 2. To assess the role of patient support in enhancing cancer awareness and understanding of treatment options in the target districts.*
- 3. To conduct a KAP (Knowledge, Attitudes, and Practices) analysis of the caregiver sensitization programs in Barpeta and Dibrugarh districts to evaluate their impact on cancer awareness and caregiving practices.*

Literature Review

Introduction to Cancer Burden

Cancer is a form of tumor characterized by abnormal cell growth, with the ability to invade surrounding tissues or spread from its site of origin to other parts of the body (1). This invasive potential arises when tumors acquire multiple malignant traits through genetic and epigenetic alterations that disrupt critical cellular processes, including DNA damage and repair mechanisms, regulation of cell proliferation, and evasion of immune surveillance (2).

Globally, cancer now contributes to higher rates of morbidity and mortality than in previous decades, a trend expected to persist in the future [1,2,3]. It is the second leading cause of death in the United States after heart disease. Notably, around 42% of newly diagnosed cancers in the U.S. are considered preventable—19% linked to smoking and 18% associated with excess body weight, physical inactivity, poor diet, and high alcohol consumption (4).

In India, the most common cancers that can often be detected early and are largely preventable include oral, breast, and cervical cancers [5]. Among men, lung cancer is the most prevalent (10.6%), followed by oral (8.4%) and prostate cancers (6.1%). In women, breast cancer accounts for the highest proportion (28.8%), followed by cervical cancer (10.6%) [6].

Breast Cancer

Breast cancer is recognized as a major public health concern and has emerged as the most common cancer among women worldwide, with a large number of new cases and deaths reported annually . The World Health Organization (WHO) has confirmed that breast cancer has been the most frequently diagnosed cancer in recent years, accounting for nearly 2.3 million cases in 2020 . According to Global Cancer Observatory (GLOBOCAN) 2020 data, breast and cervical cancers ranked first and second, respectively, among the leading causes of cancer-related deaths in India (Sung et al., 2021).

The National Cancer Institute reports that breast cancer accounts for about 40% of cancer diagnoses among women, making it the most common cancer in this group. While incidence is relatively higher among women aged 45–50 years, a significant proportion of cases are also reported in younger women (9).

Multiple factors contribute to the development of breast cancer, including postmenopausal age, late menopause, physical inactivity, hormone therapies (such as estrogen and progestin), and alcohol consumption . Family history is another important risk factor, with women having first-degree relatives diagnosed with breast cancer facing a higher risk compared to those without such a history .

Early detection through screening plays a vital role in reducing morbidity and mortality by identifying the disease at an earlier stage . Breast cancer screening methods vary across individuals and social contexts, and include breast self-examination as well as mammography . The WHO emphasizes that improving breast cancer outcomes and survival rates relies on early detection.

Treatment options for breast cancer are diverse, and modern medicines play a key role. Preventive medical therapies, such as antiestrogens (raloxifene or tamoxifen), may reduce the risk in women at high risk of developing the disease . In certain high-risk cases, preventive

surgical removal of both breasts is also considered as a measure to lower the likelihood of developing cancer.

Cervical Cancer

Cervical cancer is the third most commonly diagnosed cancer worldwide and the fourth leading cause of cancer-related deaths among women . However, in India, it ranks as the leading cancer in women , accounting for more than 74,000 deaths annually .

The primary cause of cervical cancer is infection with certain high-risk types of human papillomaviruses (HPVs). While over 140 HPV types have been identified, only about 40 are sexually transmitted.

Globally, an estimated 570,000 cases of cervical cancer and 311,000 related deaths occurred in 2018. It is the fourth most common cancer in women, after breast (2.1 million cases), colorectal (0.8 million cases), and lung cancer (0.7 million cases) . In India, cervical cancer is the second most common cancer among women aged 15–44 years, with approximately 96,922 new cases reported annually (2018 estimates) . India alone contributes to about 25% of global cervical cancer deaths .

Cervical cancer remains a significant public health concern and is the most common cancer in 42 low-income countries. Projections suggest that by 2030, nearly half a million women will die each year from cervical cancer, with 95% of these deaths occurring in low- and middle-income countries. Screening programs were introduced years ago to help reduce morbidity and mortality by detecting the disease at an early stage [22].

As part of its global strategy to eliminate cervical cancer as a public health problem, first announced in May 2018 and formally launched in November 2020, the World Health Organization (WHO) recommends HPV testing for all women at ages 35 and 45 (WHO, 2020). In many low-resource settings, visual inspection with acetic acid (VIA) is widely used due to its low cost, feasibility, immediate results, and suitability for a “screen-and-treat” approach.

In developed countries, 68%–84% of women undergo cervical cancer screening through Pap smears, whereas in India only 2.6%–5% of women are screened . This limited coverage is a major reason why many women in India are diagnosed at advanced stages of the disease. Risk factors contributing to cervical cancer, especially in sub-Saharan Africa, include persistent HPV infections and high HIV/AIDS prevalence (UNAIDS, 2012). Additional risk factors include early onset of sexual activity (before age 20), multiple sexual partners, tobacco smoking, long-term use of oral contraceptives (more than five years), family history of cervical cancer, high parity (more than three births), and immunosuppression caused by malnutrition or other systemic illnesses.

Oral Cancer

Oral and oropharyngeal cancers together represent the sixth most common malignancy worldwide . Each year, more than 400,000 new cases of oral cancer are reported globally, with nearly two-thirds occurring in Asian countries such as India, Sri Lanka, Indonesia, Pakistan, and Bangladesh . In these high-risk regions, oral cancer is the most prevalent malignancy, contributing to over 25% of all newly diagnosed cancer cases annually .

Up to half of all oral cancer cases are diagnosed at advanced stages (Stage III and IV), as early stages often remain asymptomatic. Patients typically seek medical attention only once

noticeable symptoms—such as persistent pain, bleeding, or a visible mass in the mouth or neck due to lymphatic spread—appear . A diagnostic delay of more than one month significantly increases the likelihood of presenting with advanced-stage disease .

Cancers of the oral cavity and pharynx are widely recognized as a major public health challenge, contributing to high mortality, morbidity, and disability worldwide . The incidence of oral cancer is increasing globally, particularly in developing countries . In India, oral cancer ranks first among men and third among women in terms of incidence .

Recognizing this burden, the Ministry of Health and Family Welfare (MoHFW) established a Non-Communicable Disease Technical Advisory Group (NCD TAG) in 2016 to guide the implementation of prevention, screening, and control measures for major NCDs, including hypertension, diabetes, and common cancers (oral, breast, and cervical).

Over the past two decades, India has launched several initiatives to tackle the rising burden of NCDs, with one of the most comprehensive being the **National Programme for Prevention and Control of Cancer, Diabetes, Cardiovascular Diseases and Stroke (NPCDCS)**, introduced in 2010. This program adopts an integrated approach to prevention, early detection, diagnosis, and treatment of common cancers—particularly breast, cervical, and oral cancers—across all levels of the healthcare system.

Under NPCDCS, opportunistic screening for common cancers in adults aged 30 years and above is conducted at Health and Wellness Centres (HWCs), Sub-Centres, and Primary Health Centres (PHCs). Screening methods include Visual Inspection with Acetic Acid (VIA) for cervical cancer, given its cost-effectiveness and feasibility, along with oral visual examinations as part of the routine screening protocol.

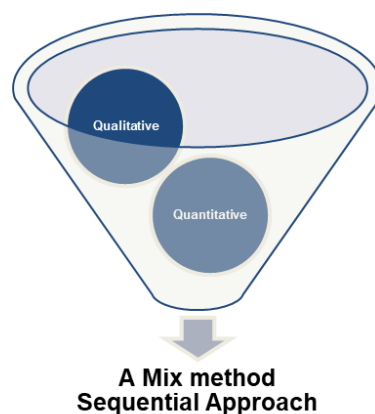
Methodology

This methodology outlines the systematic approach adopted to assess the impact of the community outreach, patient support, and caregiver sensitization programs implemented by the Assam Cancer Care Foundation (ACCF) under the Comprehensive Patient Support in Cancer Care Project in the districts of Barpeta and Dibrugarh, Assam.

The objective of this study is to evaluate how these interventions have influenced cancer awareness, treatment adherence, and caregiving practices among patients and their families in the targeted rural settings.

A **mixed-methods Convenient sampling research design** was adopted to comprehensively assess the effectiveness of the community outreach, patient support, and caregiver sensitization programs.

This approach enabled the integration of both quantitative and qualitative data to capture a multidimensional understanding of the interventions. The use of mixed methods allowed for **triangulation**, thereby enhancing the validity and depth of the findings.



Data Collection

- **Quantitative Component:** Structured surveys and KAP (Knowledge, Attitudes, Practices) questionnaires had been administered to cancer patients and caregivers. These will assess the level of cancer awareness, attitudes toward early detection and treatment, understanding of risk factors, and caregiving practices.
- **Qualitative Component:**
 - **Focus Group Discussions (FGDs)** had been conducted with caregivers to explore their experiences, perspectives on caregiving, emotional preparedness, and cultural influences.
 - **In-Depth Interviews (IDIs)** had been held with cancer patients and healthcare providers to gain insights into the challenges, effectiveness, and acceptability of the outreach and support interventions.

Study Areas

The study has been conducted **exclusively in the intervention areas of Barpeta and Dibrugarh districts**, where ACCF's programs have been implemented. These areas were selected due to their active participation in the patient support and awareness initiatives under the project.

Study Geography



Figure 1: Project location

Study Participants

- **Cancer Patients:** Receiving or recently completed treatment and have been exposed to the outreach/support programs.
- **Caregivers:** Family members who have participated in sensitization programs and provide direct support to the patients.
- **Community Members:** Individuals from the general population who have been directly exposed to the cancer-related community outreach activity.

Key Evaluation Areas

- **Cancer Awareness:** Knowledge of symptoms, risk factors, early detection, and prevention practices.
- **Screening and Health-Seeking Behavior:** Engagement in cancer screening services and timing of healthcare access.
- **Treatment Adherence:** Understanding of treatment options and commitment to prescribed regimens.
- **Caregiver Support and Practices:** Effectiveness of sensitization in improving emotional, logistical, and physical caregiving roles.
- **Patient Satisfaction:** Perceptions of support received through the ACCF interventions.

Qualitative Insights

"The qualitative component of the study will provide valuable insights into the barriers, facilitators, and socio-cultural factors influencing the effectiveness of the interventions. These factors may include stigma, gender norms, accessibility constraints, gaps in communication, and the emotional coping strategies adopted by patients and caregivers."

Sampling Methodology

The sampling approach has been designed to ensure accuracy and representativeness of the data. The sample size for each beneficiary group has been clearly defined and identified based on the study objectives and standard statistical considerations.

Sample Size Calculation

A **95% confidence interval** and a **5% margin of error** were chosen for the calculation, alongside a **90% population proportion**. The population proportion refers to the percentage of the target group expected to have knowledge or involvement with cancer care. The sample calculation is based on the data referred from the **Yearly Progress Report (April 2023 - March 2024)**. This assumption maximizes the sample size, ensuring sufficient representation, particularly in areas with potential variation in cancer awareness and access to care. The calculated sample sizes are as follows:

Cancer Care Programme Activities	Dibrugarh	Sample universe	Samples to be covered
Care Giver Sensitization programme	1418	62	34
Community level Cancer awareness activity	2948	29	29
Patient support for diagnostics, treatment, and other related needs	168	59	59
Total	4534	150	122

Table 1: Respondent category and respective sample size for Dibrugarh

The sample size of **150** was statistically calculated for Dibrugarh district, targeting a total population of 4534 across various Cancer Care Programme activities. Due to the highly remote and rural setting, approximately **81% of the intended 150 samples** (resulting in **122 covered**) were successfully conducted, with crucial support from the ACCF team, who facilitated the process and provided necessary resources.

Cancer Care Programme Activities	Barpeta	Sample universe	Samples to be covered
Care Giver Sensitization programme	1927	138	79
Community level Cancer awareness activity	1955	28	28
Patient support for diagnostics, treatment, and other related needs	178	32	32
Total	4060	198	139

Table 2: Respondent category and respective sample size for Barpeta

The sample size of **198** was statistically calculated for Barpeta district, targeting a total population of 4060 across various Cancer Care Programme activities. Due to the highly remote and rural setting, approximately **71% of the intended 198 samples** (resulting in **139 covered**) were successfully conducted, with crucial support from the ACCF team, who facilitated the process and provided necessary resources.

- **Care Giver Sensitization programme:** With a 95% confidence interval, a 5% margin of error, and a 90% population proportion, the required sample size for a population of 3345 has been calculated to be **133**. This determination ensures that the survey results are statistically reliable, providing a high level of confidence that the true value lies within the specified margin of error.

- **Community level Cancer awareness activity:** With a 95% confidence interval, a 5% margin of error, and a 90% population proportion, the required sample size for a population of 4903 has been calculated to be 135. This determination ensures that the survey results are statistically reliable, providing a high level of confidence that the true value lies within the specified margin of error.
- **Patient support for diagnostics, treatment, and other related needs:** With a 95% confidence interval, a 5% margin of error, and a 90% population proportion, the required sample size for a population of 178 has been calculated to be 79. This determination ensures that the survey results are statistically reliable, providing a high level of confidence that the true value lies within the specified margin of error.

Data Collection Method:

Data Collection Method	Respondent Type	Barpeta (Total)	Dibrugarh (Total)	Grand Total	Details/Notes
Beneficiary Surveys	Caregivers	79	34	113	Participants of caregiver sensitization programs.
	Community Members	28	29	57	Participants of community-level cancer awareness activities.
	Patients	32	59	91	Receiving support for diagnostics and treatment.
Key Informant Interviews (KIIs)/In depth Interviews (IDIs)	Program Coordinators	2	2	4	Coordinators managing the implementation of cancer care programs.
	Frontline Workers	2	2	4	Workers directly involved in patient outreach and support.
Focus Group Discussions (FGDs)	Community Leaders	1	1	2	Leaders providing insights on community-level impact.
	Frontline Workers	1	1	2	Discussing program challenges and feedback.

Table 3: Respondent category for data collection method for both the district

Consent process

Consent of all respondents will be obtained prior to conducting the interviews for the dissertation research. The consent process will include a clear explanation of the evaluation's nature, confidentiality measures, the expected duration of the interview, and any potential risks involved. All data collected from respondents will be treated with strict confidentiality, ensuring that the views of individual respondents cannot be linked back to them. Respondents will be thoroughly informed about the purpose, scope, and methodology of the dissertation study, and their voluntary participation will be explicitly requested. The survey intimation letter, necessary permissions, and appointments of officials will be coordinated and provided by the project manager or a senior official from the ACCF team.

Results

Socio-demographic Characteristics of Respondents

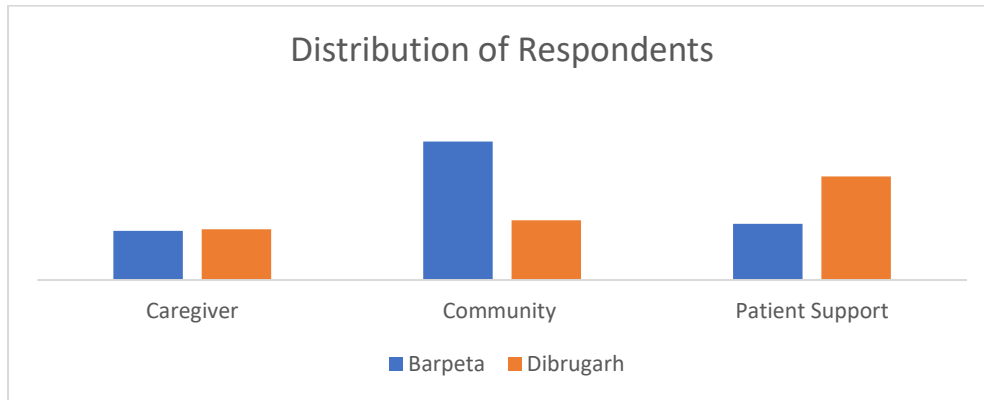


Figure 2: Distribution of Respondents

Age distribution of the Respondents

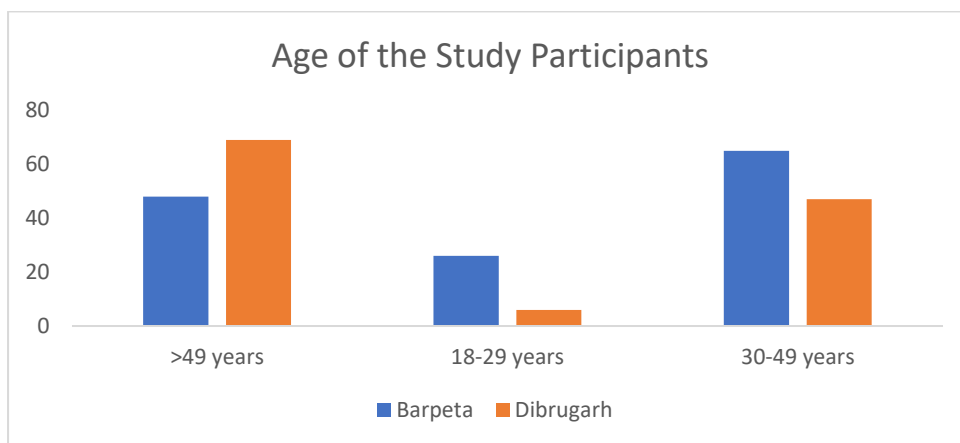


Figure 3: Age of the Respondents

Gender Distribution among the Respondents

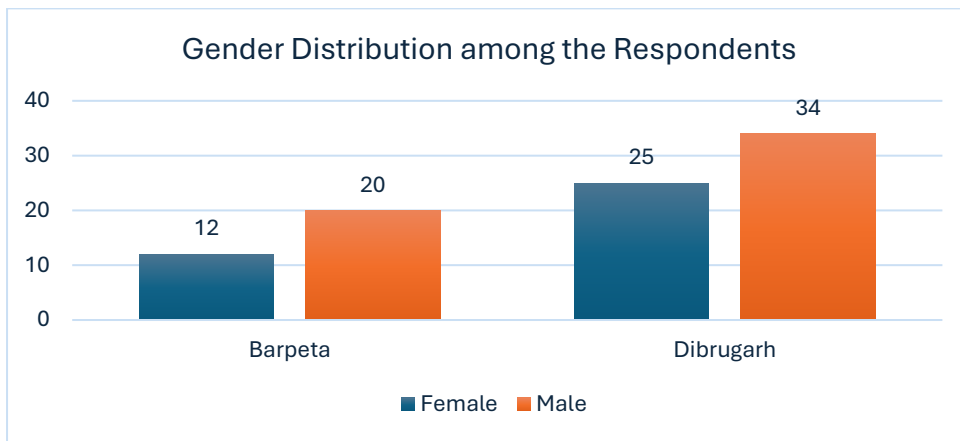


Figure 4: Gender of the Patients

Qualification of the Patients

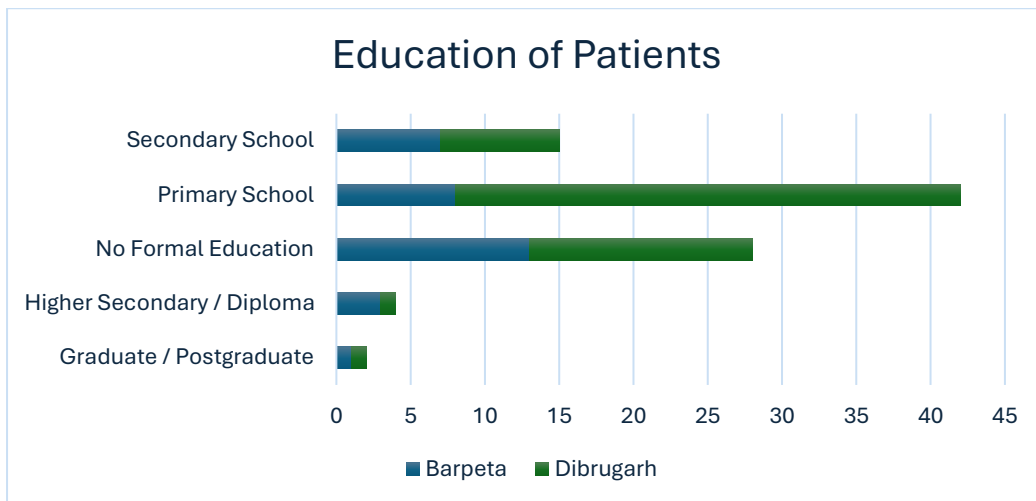


Figure 5: Qualification of the respondents

Occupation of the Patients

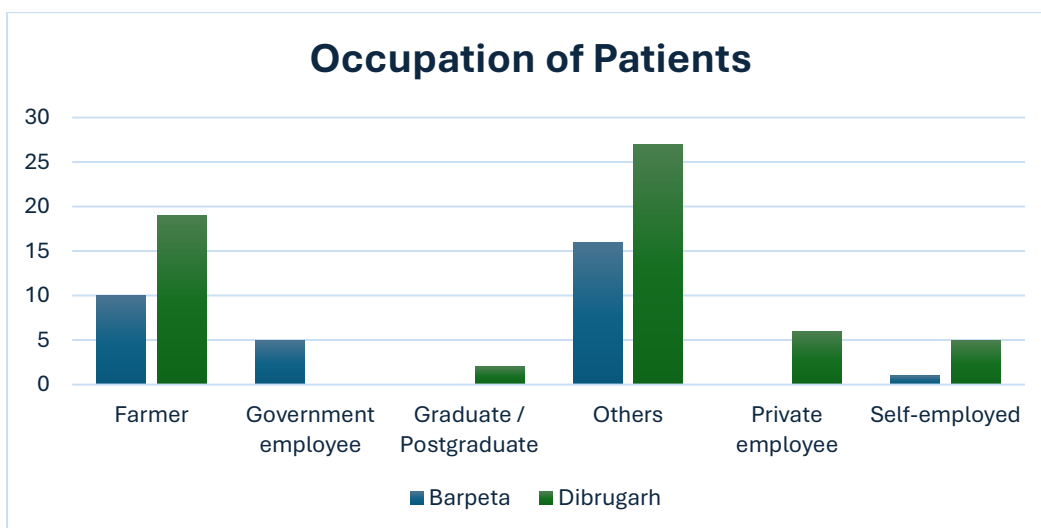


Figure 6: Qualification of the Patients

Others are housewife, business owner, not working and Student and is considered of notable percentage.

Income of the Respondents Patients

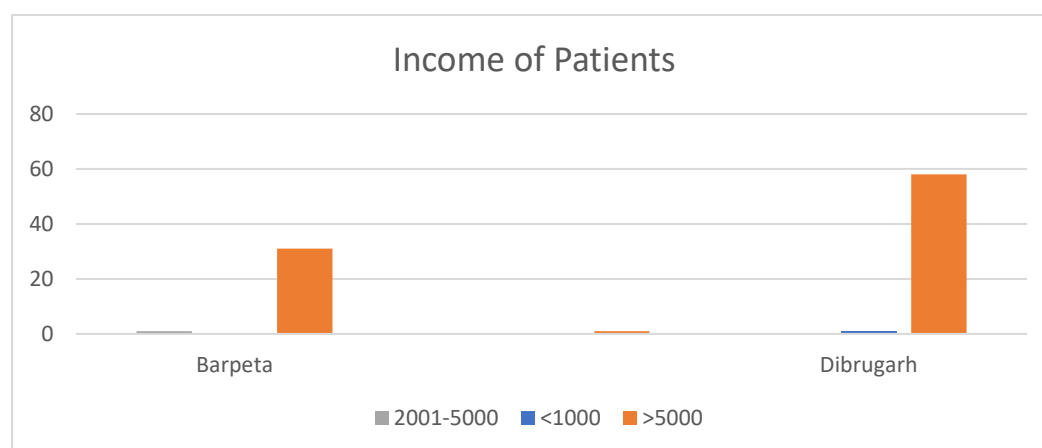


Figure 7: Income of the Patients

Patient Support

Facilitation of Cancer Screening

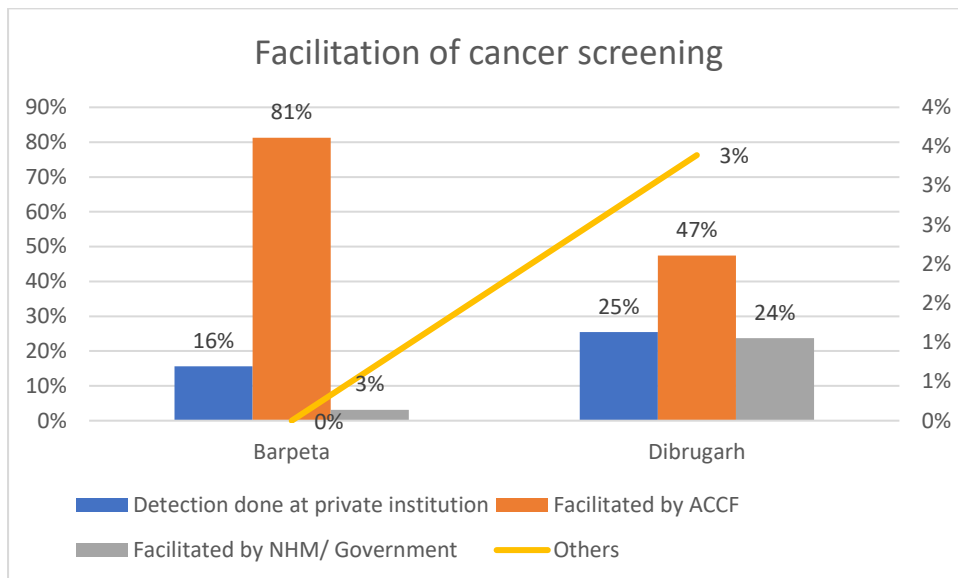


Figure 8: Facilitation of cancer screening

Stages of Cancer Diagnosed

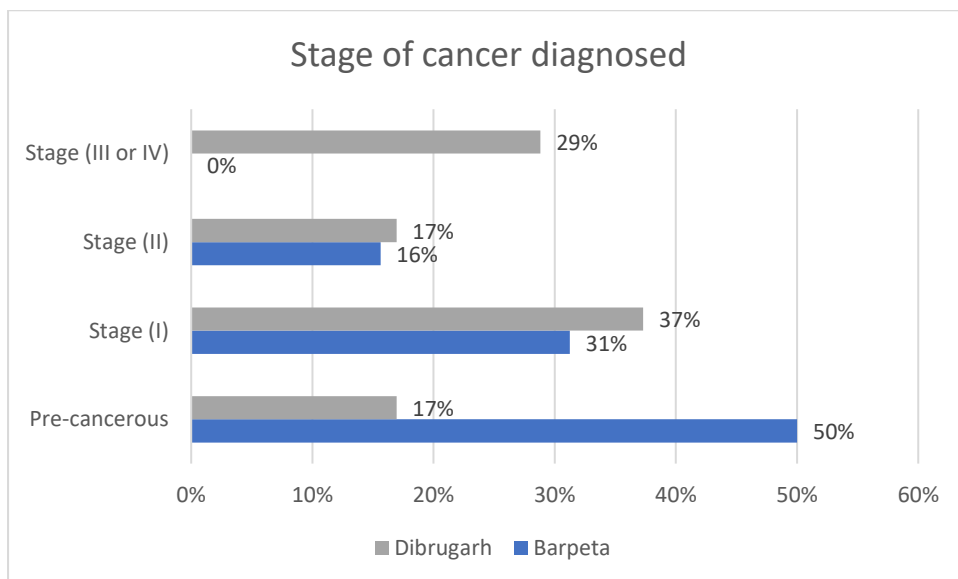


Figure 9: Stage at which cancer diagnosed

Type of Treatment Patients Receiving

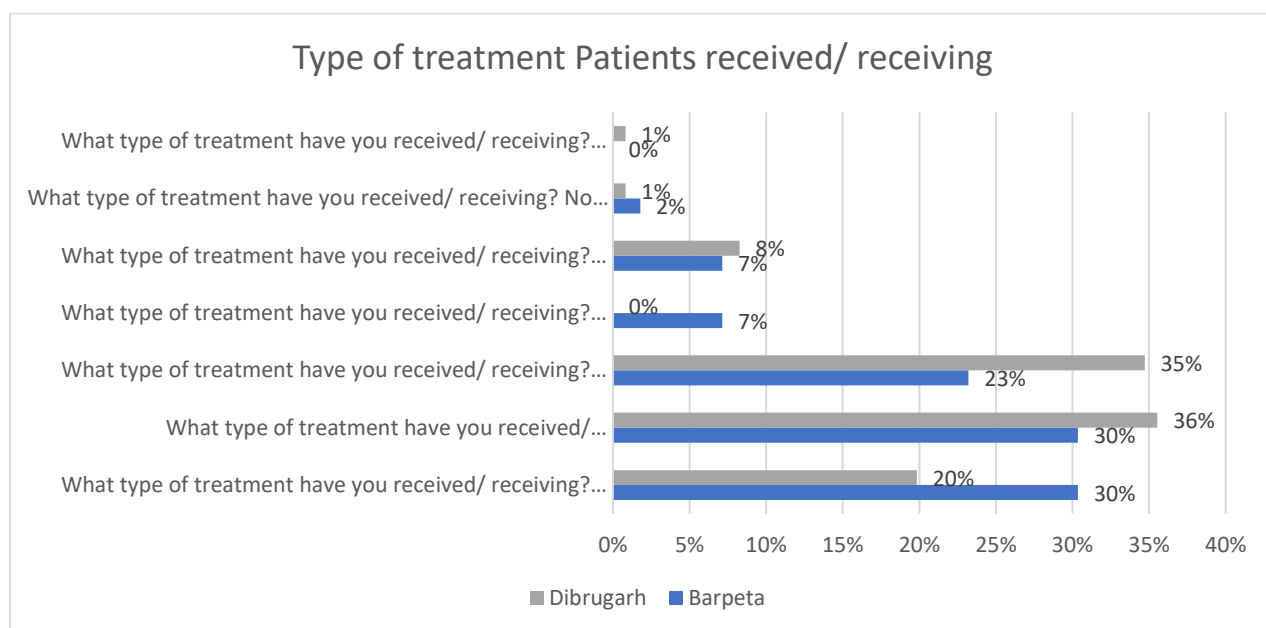


Figure 10: Type of treatment patients receiving

Any Health Insurance support for the Patients

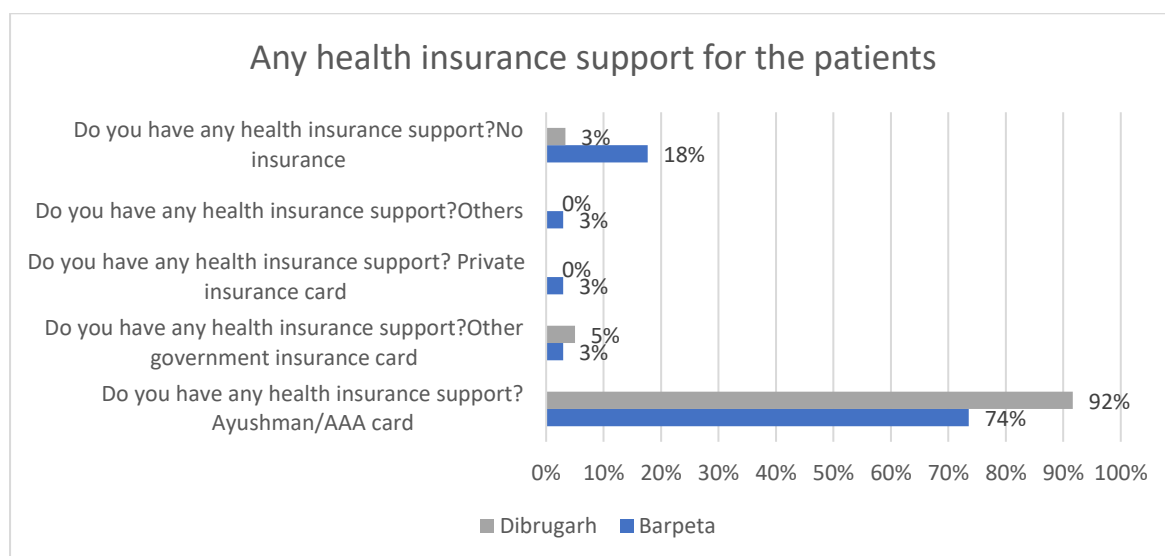


Figure 11: Health Insurance support for the Patients

Difficulty Faced by Patients in accessing cancer treatment

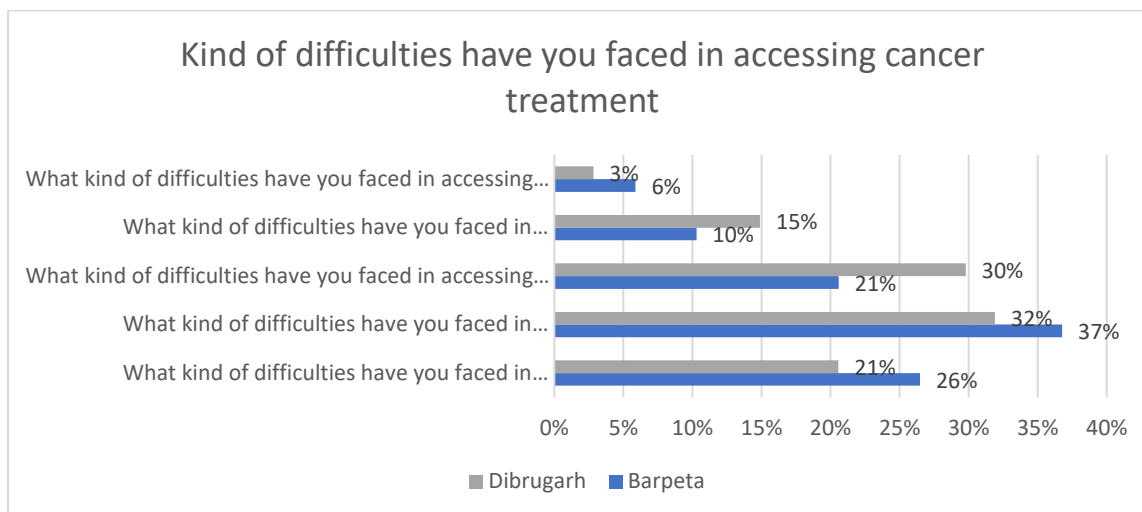


Figure 12: Kind of difficulties faced in accessing cancer treatment

Patients Received Support from ACCF

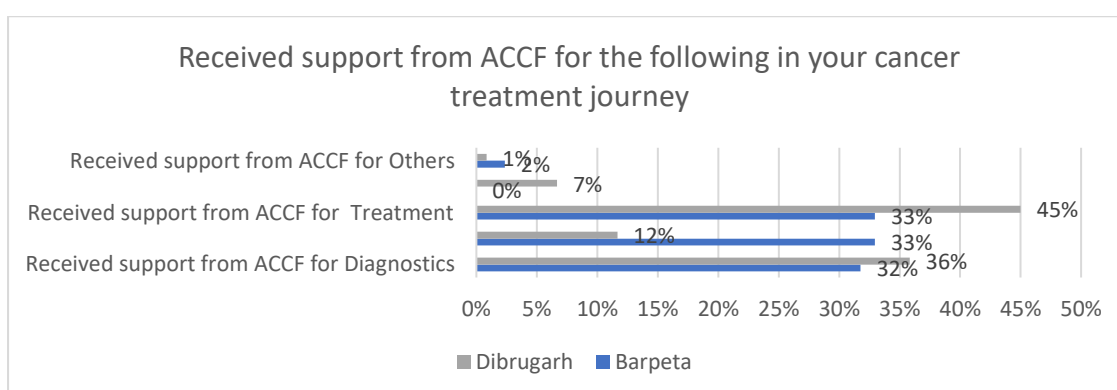


Figure 13: Patient received support from ACCF

Effectiveness of ACCF Program intervention

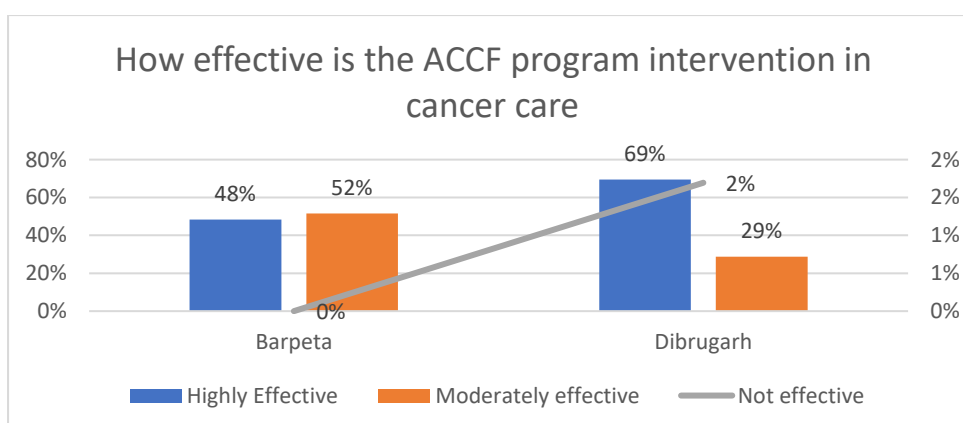


Figure 14: Effectiveness of ACCF program Intervention

Patients supported by ACCF interventions

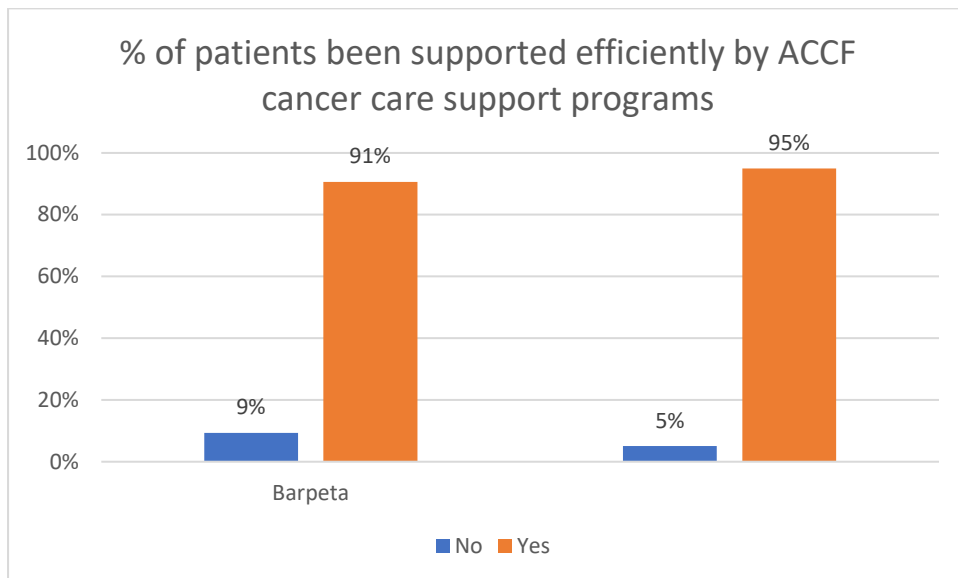


Figure 15: Percentage of patients supported by ACCF

Kind of Support needed by most of the patients

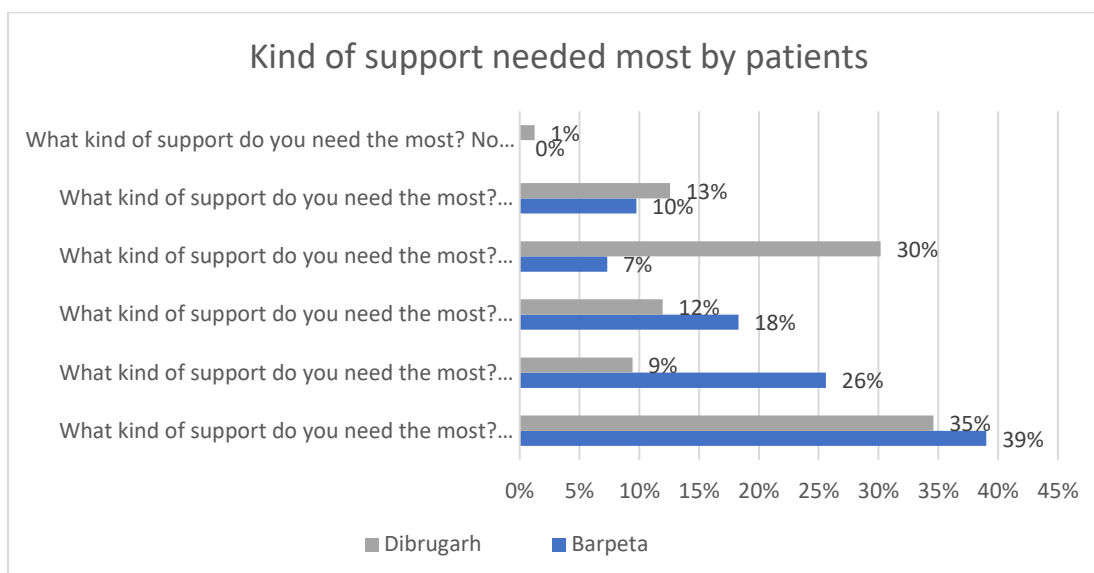


Figure 16: Kind of support needed most by patients

Caregiver

Relationship of Caregiver with the Patients

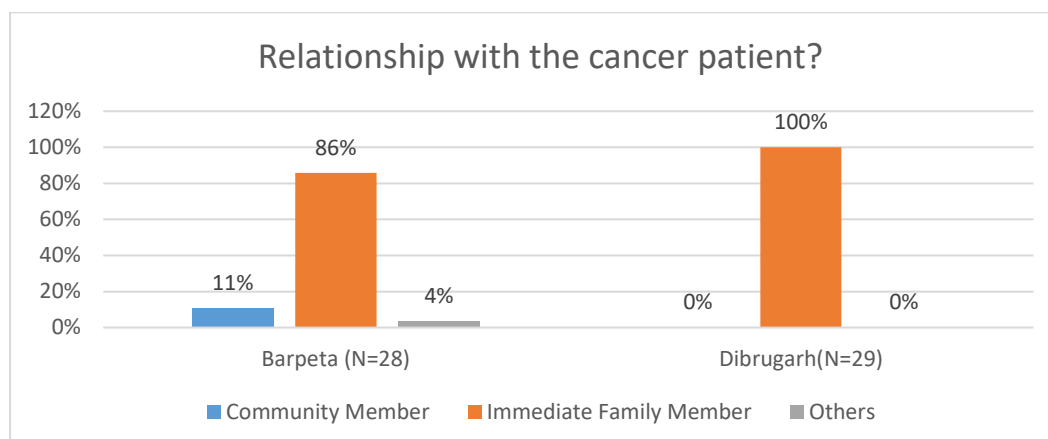


Figure 17: Relationship of patients with caregiver

How long have you been the caregiver of the Patient?

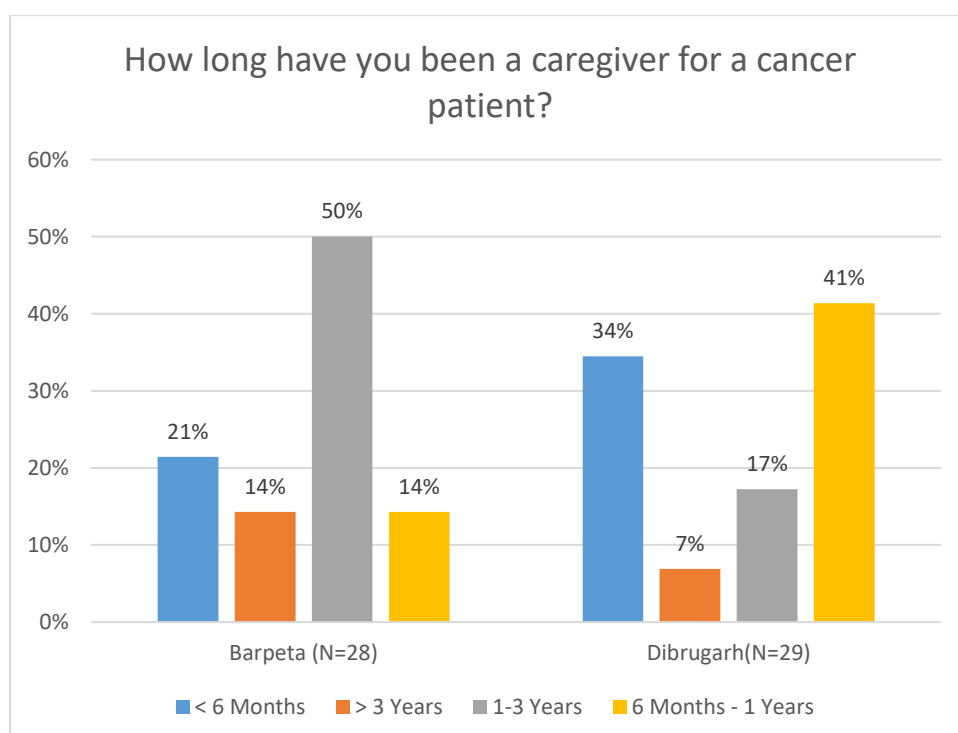


Figure 18: Duration of Caregiving for Patient

Formal Training Received in Caregiving

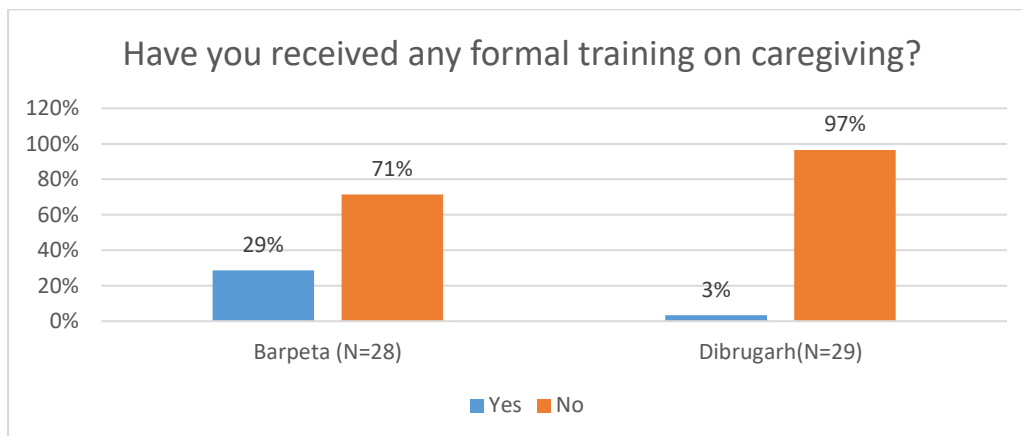


Figure 19: Formal Training received in caregiving

Support More than One Cancer Patients

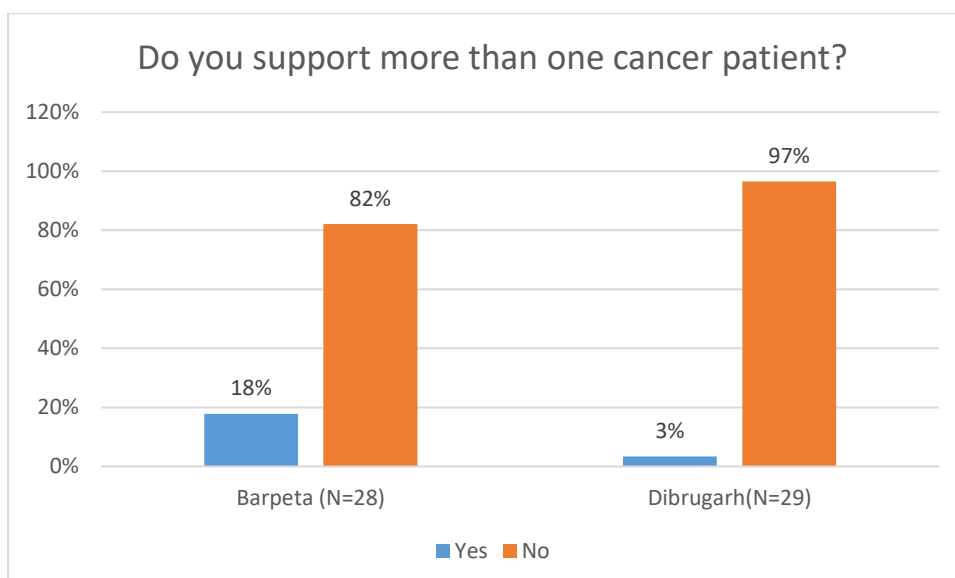


Figure 20: Support more than one patient

Trained in Recognizing side effects of Treatment

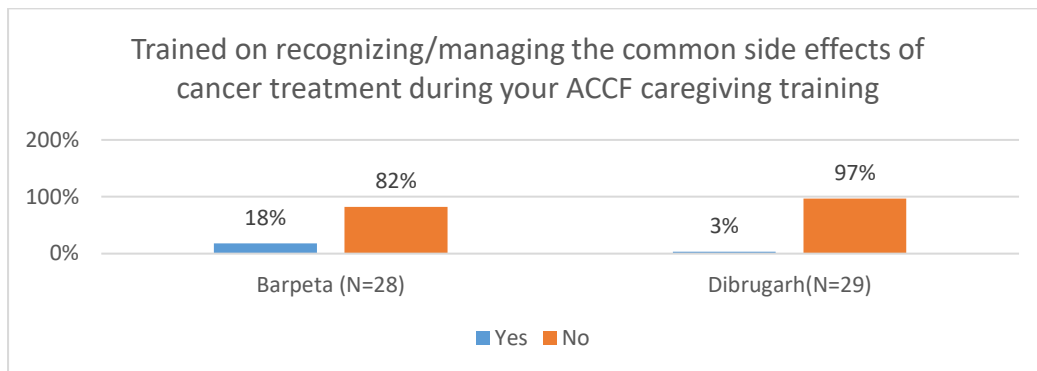


Figure 21: Trained in recognizing side effects of treatment

Confident while dealing with the Cancer Patients

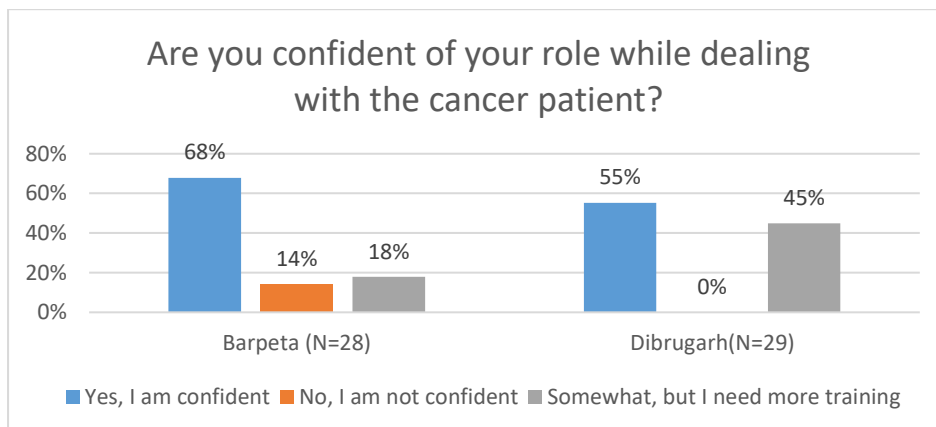


Figure 22: Confident while dealing with cancer patients

Biggest Challenge faced as a Caregiver

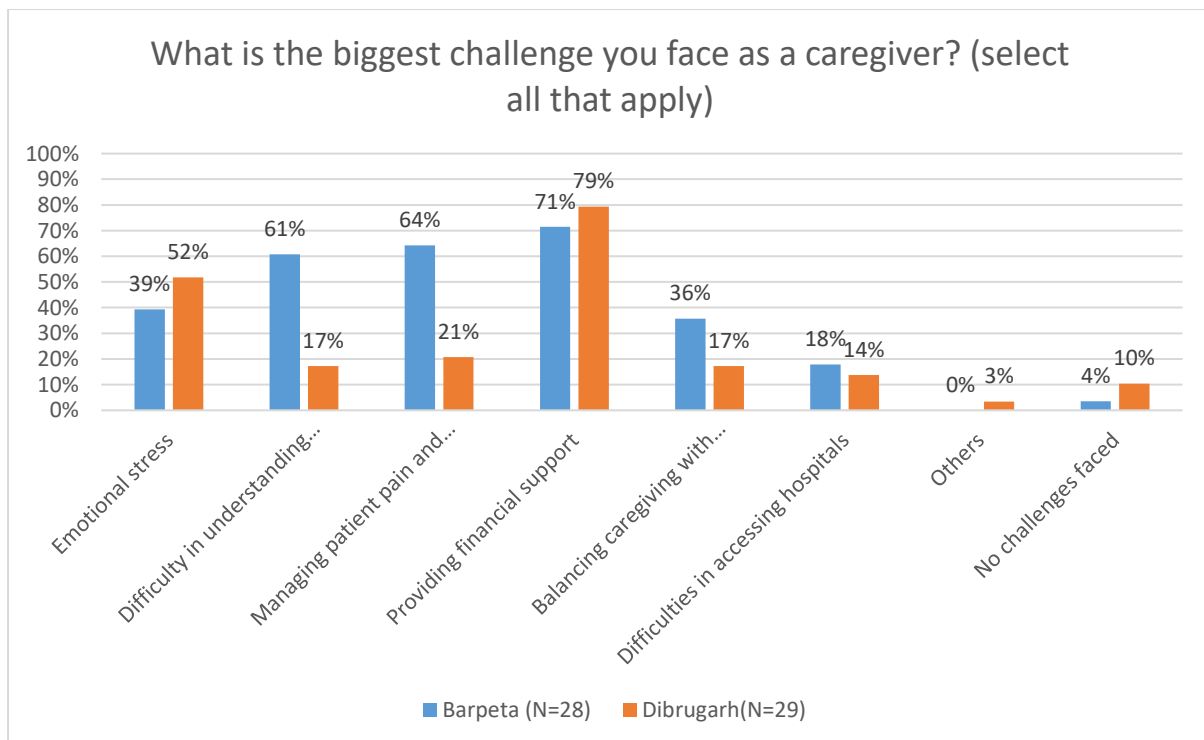


Figure 23: Biggest challenge faced as caregiver

Any Additional Support Required

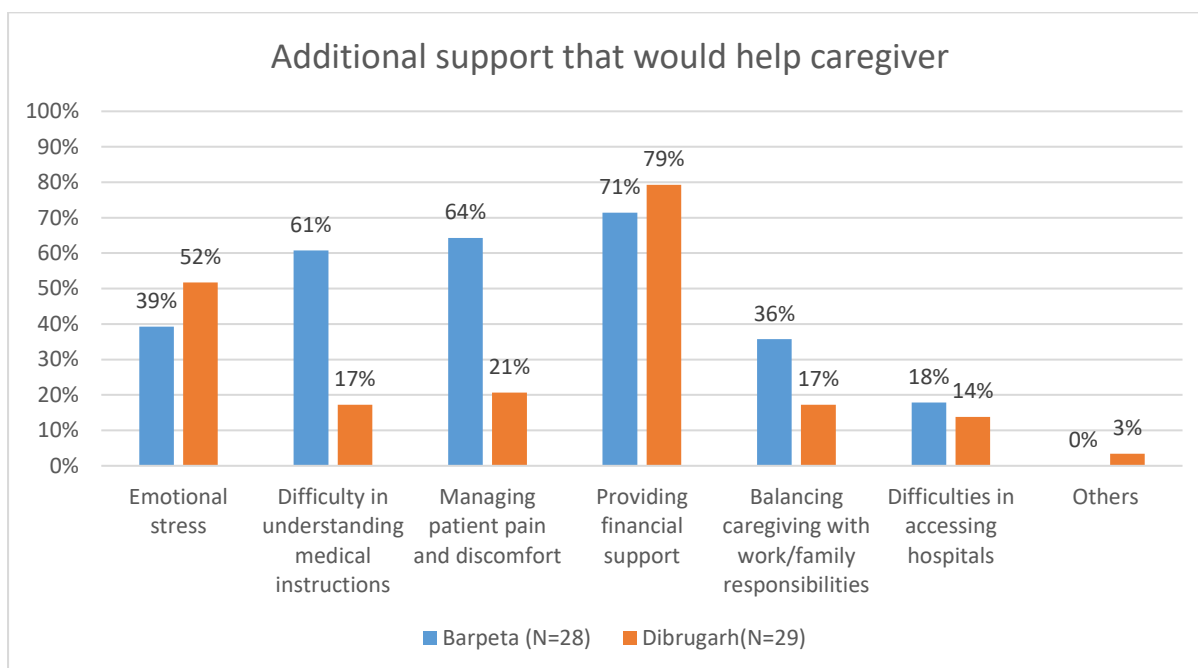


Figure 24: Any additional support required

Community Members

Age of Community Respondents

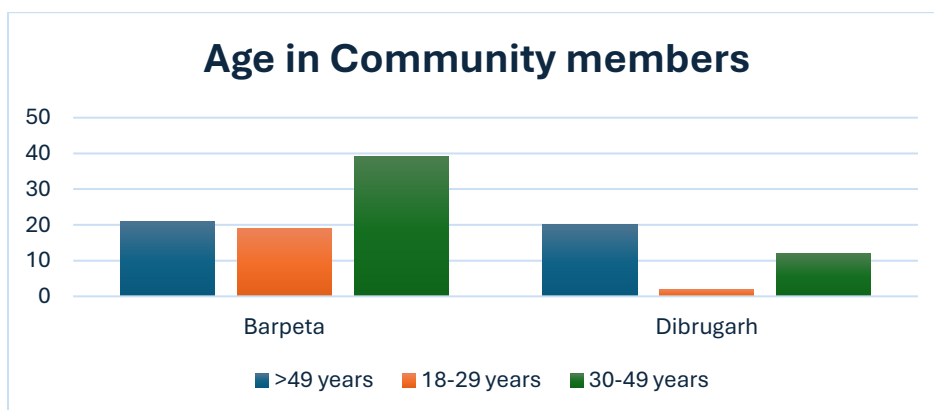


Figure 25: Age of community members

Gender of Community Respondents

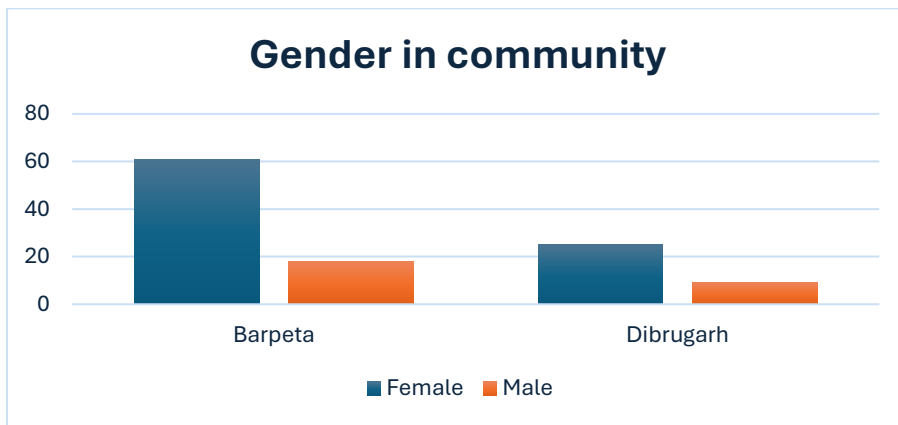


Figure 26: Gender of community members

Attended a Cancer Awareness Program

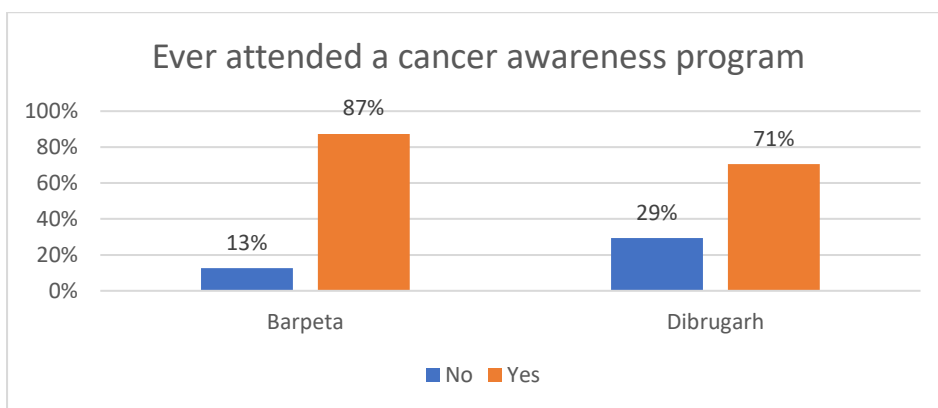


Figure 27: Community member ever attended a cancer awareness program

Frequency of Attendance in Awareness Programs

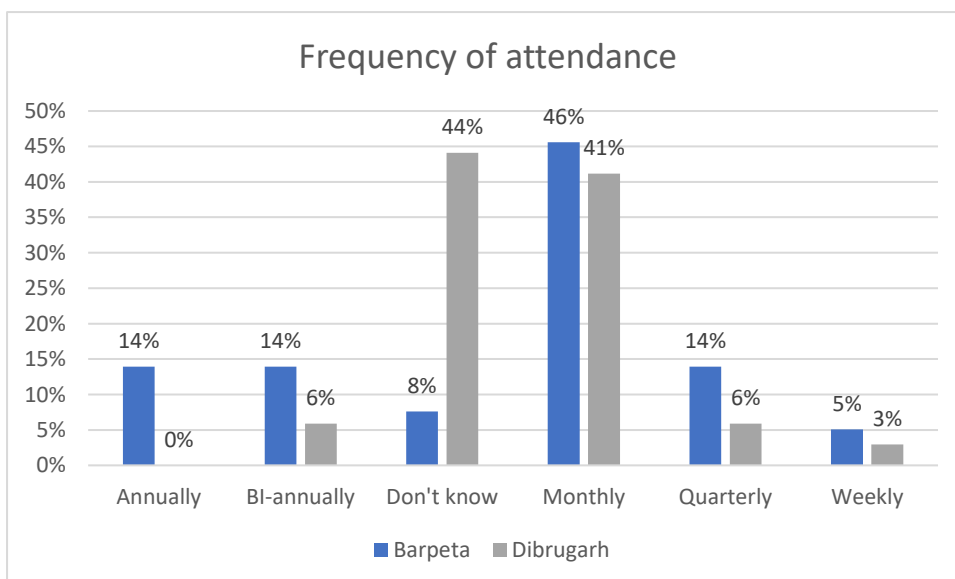


Figure 28: Frequency of attendance of cancer awareness program

Screening Uptake -from CBAC Forms

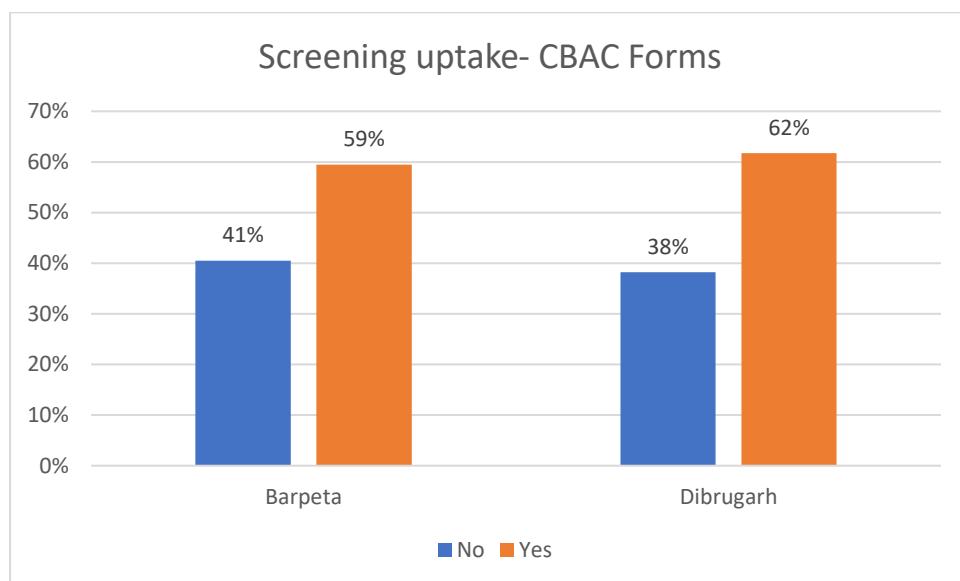


Figure 29: Screening uptake from CBAC Forms

Screened for Which type of Cancer

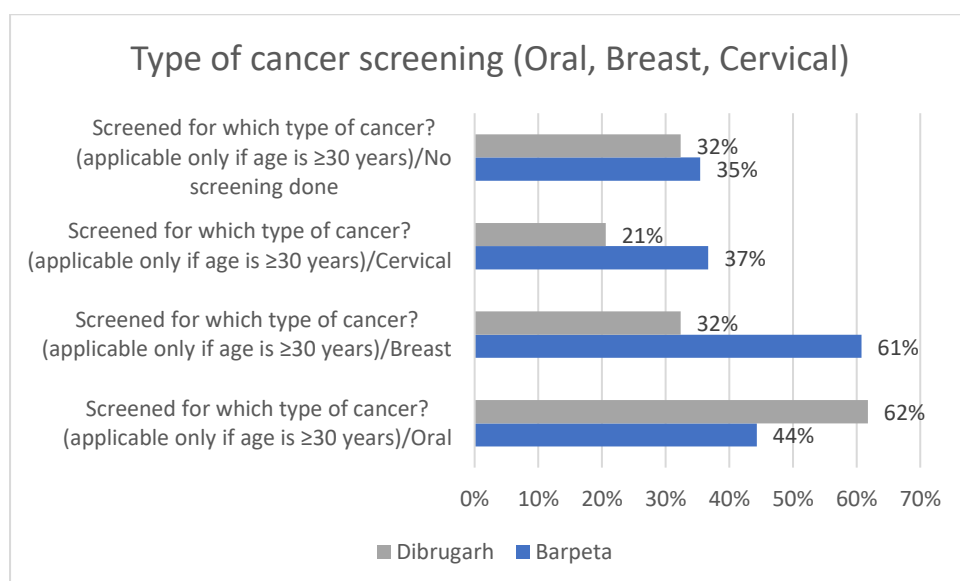


Figure 30: Screened for which type of Cancer

Awareness of Cancer Risk Factors and Symptoms

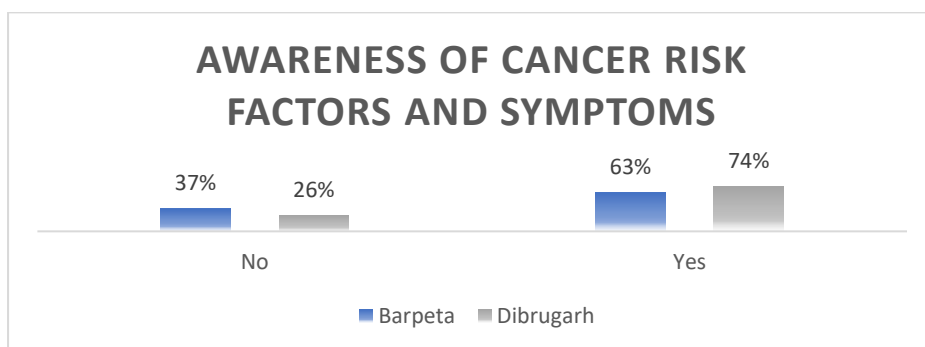


Figure 31: Knowledge of cancer risk factors and symptoms

Awareness of Financial Schemes

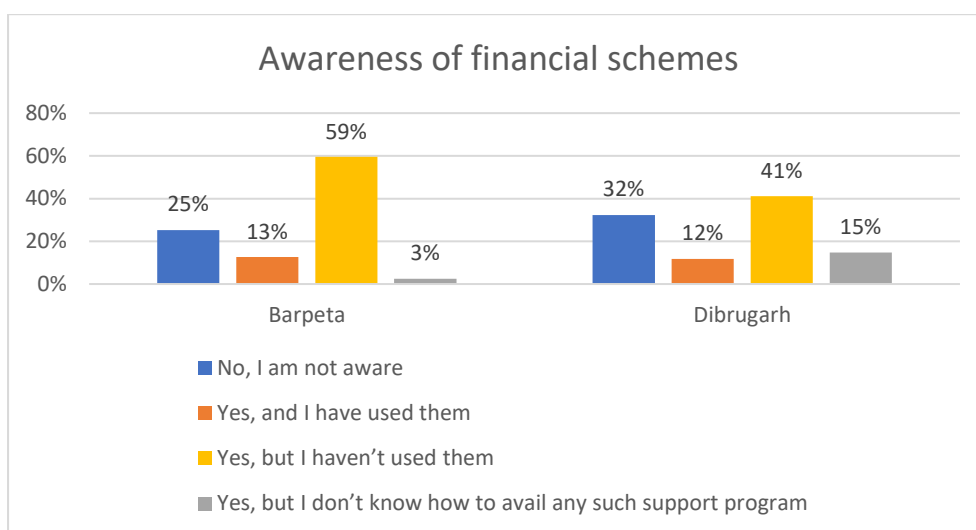


Figure 32: Awareness of financial assistance schemes

Common challenges faced by cancer patients

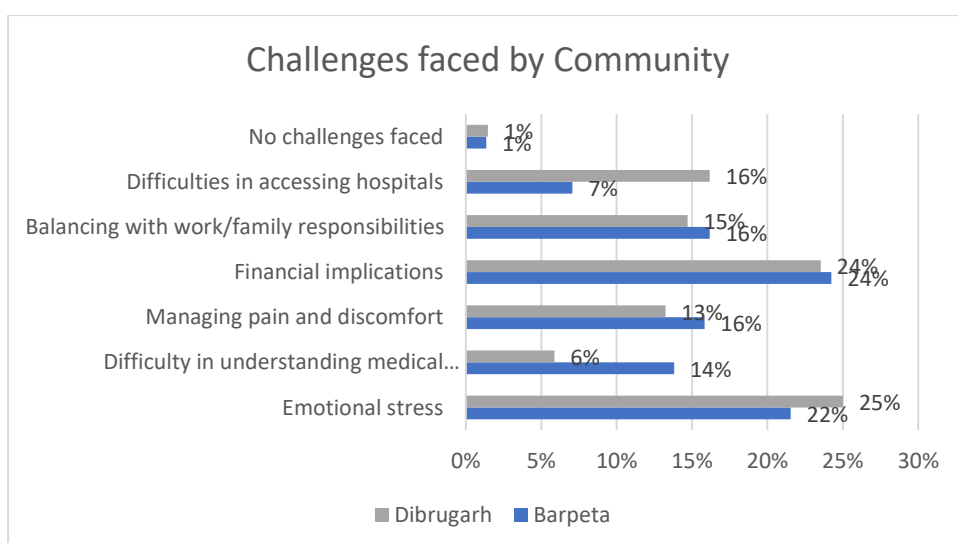


Figure 33: Challenges faced by community member

Awareness about ACCF supported interventions

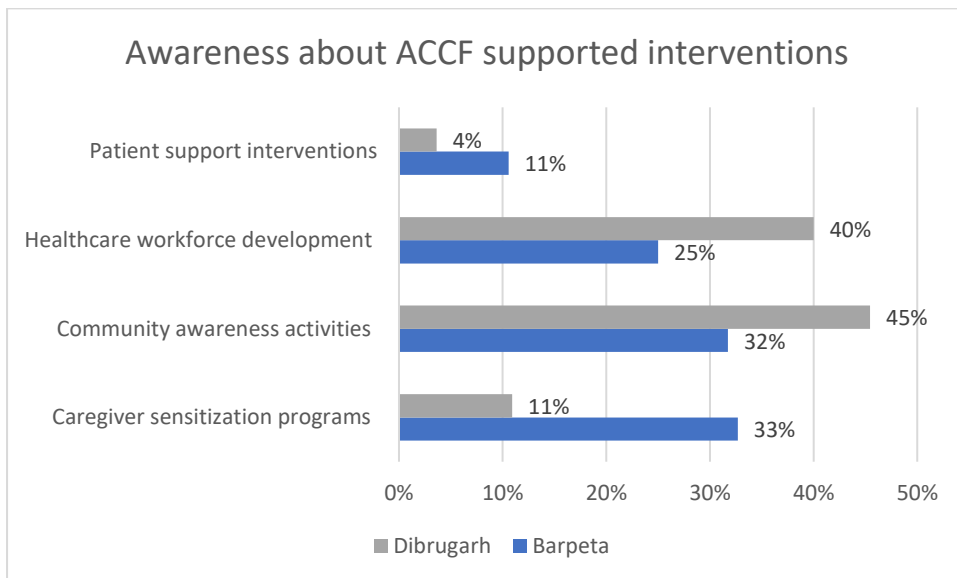


Figure 34: Awareness about supported interventions

Community Perception about cancer as stigma

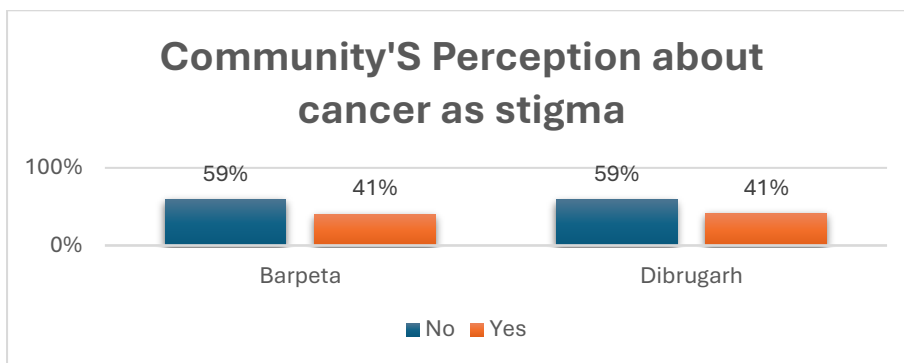


Figure 35: Community perception about cancer as stigma

Suggestion to improve Cancer care run by ACCF

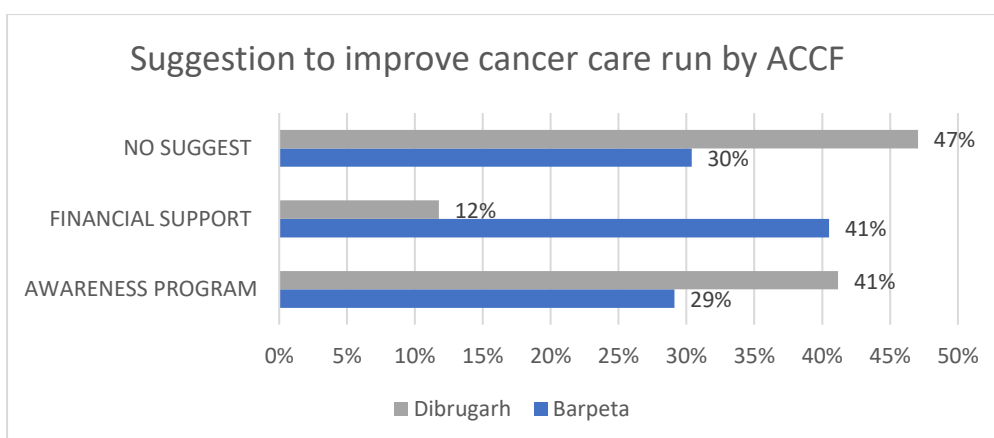


Figure 36: Suggestion to improve cancer care intervention

Discussion

This study revealed substantial gaps in cancer awareness and screening uptake among participants. Only 42.3% of respondents demonstrated adequate knowledge of early signs and symptoms of common cancers, with awareness being significantly higher among urban residents compared to rural counterparts. This mirrors findings by Gupta and Nandakumar (1999) and Byakodi et al. (2012), who reported geographic disparities in cancer knowledge across India.

Screening uptake was markedly low, with just 18.7% of women ever undergoing cervical cancer screening and 22.5% reporting a clinical breast examination, despite availability of services in the area. This aligns with Harsha Kumar and Tanya (2014) and Shekhar et al. (2013), who identified sociocultural barriers and limited-service accessibility as critical determinants of screening behaviour. A significant association was observed between delayed health-seeking behaviour and advanced-stage cancer presentation, with 61.2% of symptomatic individuals waiting more than three months before consulting a healthcare provider. This finding supports Gómez et al. (2009), who demonstrated that diagnostic delays strongly correlate with late-stage diagnosis and poorer survival outcomes.

Lifestyle risk factors remain a major concern, with tobacco use prevalence at 37.8% and alcohol consumption at 21.4%, both significantly higher among males. These trends are consistent with Warnakulasuriya (2009) and McCullough et al. (2010), emphasising the need for robust preventive strategies targeting behavioural change.

Encouragingly, the presence of active community-based organisations provides an opportunity for integrated awareness and screening interventions. Lessons from Lowy and Schiller (2012) and Bruni et al. (2019) suggest that community engagement, combined with service accessibility, can improve uptake of preventive measures such as HPV vaccination and cervical cancer screening.

Integration of qualitative insights

FGDs with community leaders underscored the importance of culturally sensitive messaging, particularly in rural areas where fatalistic beliefs about cancer prevail. Frontline workers highlighted the need for refresher trainings, better referral tracking, and coordination with local self-help groups to strengthen follow-up after initial screening.

Conclusion

The ACCF interventions in Barpeta and Dibrugarh demonstrate meaningful outreach and service coverage in high-burden districts with historically low screening uptake. While awareness has improved in many segments, structural barriers, stigma, and geographic constraints continue to limit preventive behaviours and timely care. Addressing these barriers through sustained, culturally adapted, and system-linked strategies will be essential to achieving early detection and better cancer outcomes in Assam.

References

1. National Cancer Institute. Cancer [Internet]. Bethesda: National Cancer Institute; 2022 [cited 2025 Jun 23]. <https://www.cancer.gov/about-cancer/understanding/what-is-cancer>
2. Hanahan, D., & Weinberg, R. A. (2011). Hallmarks of cancer: the next generation. *Cell*, 144(5), 646–674. <https://doi.org/10.1016/j.cell.2011.02.013>
3. Suwankhong, D., Liamputtong, P., Boonrod, T., Simla, W., Khunpol, S., & Thanapop, S. (2023). Breast Cancer and Screening Prevention Programmes: Perceptions of Women in a Multicultural Community in Southern Thailand. *International journal of environmental research and public health*, 20(6), 4990. <https://doi.org/10.3390/ijerph20064990>
4. Islami, F., Goding Sauer, A., Miller, K. D., Siegel, R. L., Fedewa, S. A., Jacobs, E. J., McCullough, M. L., Patel, A. V., Ma, J., Soerjomataram, I., Flanders, W. D., Brawley, O. W., Gapstur, S. M., & Jemal, A. (2018). Proportion and number of cancer cases and deaths attributable to potentially modifiable risk factors in the United States. *CA: a cancer journal for clinicians*, 68(1), 31–54. <https://doi.org/10.3322/caac.21440>
5. Mangayarkarasi, V., Durairaj, E., & Ramanathan, V. (2025). Enhancing Cancer Screening and Early Diagnosis in India: Overcoming Challenges and Leveraging Emerging Technologies. *Cureus*, 17(2), e78808. <https://doi.org/10.7759/cureus.78808>
6. Mangayarkarasi, V., Durairaj, E., & Ramanathan, V. (2025). Enhancing Cancer Screening and Early Diagnosis in India: Overcoming Challenges and Leveraging Emerging Technologies. *Cureus*, 17(2), e78808. <https://doi.org/10.7759/cureus.78808>
7. Haghbeen M, Nazemifard A, Kalani N, Ghaedi M, Sepidkar AA. A Study of Women's Beliefs toward the Breast Cancer Screening Methods. *International Journal of Medical Investigation*. 2020 Oct 10;9(3):66-75.
8. <https://www.who.int/news-room/fact-sheets/detail/cancer>
9. Arzanova E, Mayrovitz HN. The Epidemiology of Breast Cancer. In: Mayrovitz HN, editor. *Breast Cancer* [Internet]. Brisbane (AU): Exon Publications; 2022 Aug 6. Chapter 1 <https://www.ncbi.nlm.nih.gov/books/NBK583819/> doi:10.36255/exon-publications-breast-cancer-epidemiology <https://www.ncbi.nlm.nih.gov/books/NBK583819/>
10. Morman, N. A., Byrne, L., Collins, C., Reynolds, K., & Bell, J. G. (2017). Breast Cancer Risk Assessment at the Time of Screening Mammography: Perceptions and Clinical Management Outcomes for Women at High Risk. *Journal of genetic counseling*, 26(4), 776–784. <https://doi.org/10.1007/s10897-016-0050-y>
11. Haghbeen M, Nazemifard A, Kalani N, Ghaedi M, Sepidkar AA. A Study of Women's Beliefs toward the Breast Cancer Screening Methods. *International Journal of Medical Investigation*. 2020 Oct 10;9(3):66-75. <https://civilica.com/doc/1138389/>
12. Mascara, M., & Constantinou, C. (2021). Global Perceptions of Women on Breast Cancer and Barriers to Screening. *Current oncology reports*, 23(7), 74. <https://doi.org/10.1007/s11912-021-01069-z>
13. Suwankhong, D., & Liamputtong, P. (2018). Early Detection of Breast Cancer and Barrier to Screening Programmes amongst Thai Migrant Women in Australia: A Qualitative Study. *Asian*

Pacific journal of cancer prevention : APJCP, 19(4), 1089–1097.
<https://doi.org/10.22034/APJCP.2018.19.4.1089>

14. Mascara, M., Constantinou, C. Global Perceptions of Women on Breast Cancer and Barriers to Screening. *Curr Oncol Rep* 23, 74 (2021). <https://doi.org/10.1007/s11912-021-01069-z>
15. Duenas-Gonzalez, A., Serrano-Olvera, A., Cetina, L., & Coronel, J. (2014). New molecular targets against cervical cancer. *International journal of women's health*, 6, 1023–1031. <https://doi.org/10.2147/IJWH.S49471>
16. Dikshit, R., Gupta, P. C., Ramasundarahettige, C., Gajalakshmi, V., Aleksandrowicz, L., Badwe, R., Kumar, R., Roy, S., Suraweera, W., Bray, F., Mallath, M., Singh, P. K., Sinha, D. N., Shet, A. S., Gelband, H., Jha, P., & Million Death Study Collaborators (2012). Cancer mortality in India: a nationally representative survey. *Lancet (London, England)*, 379(9828), 1807–1816. [https://doi.org/10.1016/S0140-6736\(12\)60358-4](https://doi.org/10.1016/S0140-6736(12)60358-4)
17. <https://gco.iarc.fr/en>
18. Lowy, D. R., & Schiller, J. T. (2012). Reducing HPV-associated cancer globally. *Cancer prevention research (Philadelphia, Pa.)*, 5(1), 18–23. <https://doi.org/10.1158/1940-6207.CAPR-11-0542>
19. Lowy, D. R., & Schiller, J. T. (2012). Reducing HPV-associated cancer globally. *Cancer prevention research (Philadelphia, Pa.)*, 5(1), 18–23. <https://doi.org/10.1158/1940-6207.CAPR-11-0542>
20. Bruni LB, Barrionuevo-Rosas L, Albero G, Serrano B, Mena M, Gómez D, Muñoz J, Bosch FX, De Sanjosé S. Human papillomavirus and related diseases report. ICO/IARC information centre on HPV and Cancer (HPV Information Centre). 2019 Jun;7:26-42. 10.3802/jgo.2019.30.e17
21. Harsha Kumar, H., & Tanya, S. (2014). A Study on Knowledge and Screening for Cervical Cancer among Women in Mangalore City. *Annals of medical and health sciences research*, 4(5), 751–756. <https://doi.org/10.4103/2141-9248.141547>
22. Salehiniya, H., Momenimovahed, Z., Allahqoli, L., Momenimovahed, S., & Alkatout, I. (2021). Factors related to cervical cancer screening among Asian women. *European review for medical and pharmacological sciences*, 25(19), 6109–6122. https://doi.org/10.26355/eurrev_202110_26889
23. Shekhar, S., Sharma, C., Thakur, S., & Raina, N. (2013). Cervical cancer screening: knowledge, attitude and practices among nursing staff in a tertiary level teaching institution of rural India. *Asian Pacific journal of cancer prevention : APJCP*, 14(6), 3641–3645. <https://doi.org/10.7314/apjcp.2013.14.6.3641>
24. *Comprehensive Cervical Cancer Control: A Guide to Essential Practice*. (2014). (2nd ed.). World Health Organization.
25. Warnakulasuriya S. (2009). Global epidemiology of oral and oropharyngeal cancer. *Oral oncology*, 45(4-5), 309–316. <https://doi.org/10.1016/j.oraloncology.2008.06.002>
26. Montero, P. H., & Patel, S. G. (2015). Cancer of the oral cavity. *Surgical oncology clinics of North America*, 24(3), 491–508. <https://doi.org/10.1016/j.soc.2015.03.006>

27. Warnakulasuriya S. (2009). Global epidemiology of oral and oropharyngeal cancer. *Oral oncology*, 45(4-5), 309–316. <https://doi.org/10.1016/j.oraloncology.2008.06.002>
28. Warnakulasuriya S. (2009). Global epidemiology of oral and oropharyngeal cancer. *Oral oncology*, 45(4-5), 309–316. <https://doi.org/10.1016/j.oraloncology.2008.06.002>
29. McCullough, M. J., Prasad, G., & Farah, C. S. (2010). Oral mucosal malignancy and potentially malignant lesions: an update on the epidemiology, risk factors, diagnosis and management. *Australian dental journal*, 55 Suppl 1, 61–65. <https://doi.org/10.1111/j.1834-7819.2010.01200.x>
30. Gómez, I., Seoane, J., Varela-Centelles, P., Diz, P., & Takkouche, B. (2009). Is diagnostic delay related to advanced-stage oral cancer? A meta-analysis. *European journal of oral sciences*, 117(5), 541–546. <https://doi.org/10.1111/j.1600-0722.2009.00672.x>
31. Natarajan, E., & Eisenberg, E. (2011). Contemporary concepts in the diagnosis of oral cancer and precancer. *Dental clinics of North America*, 55(1), 63–88. <https://doi.org/10.1016/j.cden.2010.08.006>
32. Carter, L. M., & Ogden, G. R. (2007). Oral cancer awareness of undergraduate medical and dental students. *BMC medical education*, 7, 44. <https://doi.org/10.1186/1472-6920-7-44>
33. Byakodi, R., Byakodi, S., Hiremath, S., Byakodi, J., Adaki, S., Marathe, K., & Mahind, P. (2012). Oral cancer in India: an epidemiologic and clinical review. *Journal of community health*, 37(2), 316–319. <https://doi.org/10.1007/s10900-011-9447-6>
34. Johnson, N. W., & Warnakulasuriya, K. A. (1993). Epidemiology and aetiology of oral cancer in the United Kingdom. *Community dental health*, 10 Suppl 1, 13–29.
35. Gupta, P. C., & Nandakumar, A. (1999). Oral cancer scene in India. *Oral diseases*, 5(1), 1–2. <https://doi.org/10.1111/j.1601-0825.1999.tb00055.x>

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