ORIGINAL ARTICLE

A Community Based Cross-Sectional Study on Gender Differences in Cancer Awareness Among Rural Population in South India

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Abstract

Background: Cancer is one of the major non communicable diseases and in India, there is a lack of awareness regarding cancer symptoms and their screening methods especially among women in rural areas **Aim & Objective:** To assess the gender differences in the cancer awareness among the study population. **Settings and Design**: Community based cross-sectional study was conducted in the field practice area of department of community medicine on 414 adults selected by systematic random sampling. **Methods and Material**: The awareness level regarding the etiology, common sites, presenting complaints, mode of diagnosis, treatment, prevention & methods of prevention of cancer and relationship between gender and awareness levels were evaluated **Statistical analysis**: Chi-square test was used to study the association between knowledge and gender **Results**: A total of 414 subjects were included in the final analysis. Majority (55.80%) were females. In the study, 94.69% had heard of cancer and mostly (60.87%) through Television. Breast (11.4%), Oral (10.9%) and other sites (48.1%) were the commonly known sites of cancers. **Conclusion**: There was no significant difference in knowledge regarding cancer site, cause, treatment and prevention between females and males.

Keywords

Cancer; Rural population; Sex differences;

Introduction

Noncommunicable diseases (NCDs) are on the rise globally in the last few decades leading to modern epidemics. Cancer is one of the major NCDs and is emerging as a major health problem globally. (1) Every year NCDs kill an estimated 41 million people which is equal to 71% of all deaths globally. (2)

Cancers alone account for nearly million deaths annually and are only next to Cardiovascular diseases in causing mortality globally. (2,3) Also, the impact of cancer on economic development of a country is significant. Around one third of deaths from cancer are due to behavioural and dietary risks. (4) According to the GLOBOCAN 2018 estimates, there will be an estimated 18.1 million new cancer cases and 9.6 million cancer deaths in 2018. (5) Although facilities for proper screening and management of cancer patients are available in countries like India in both public and private sectors, there is a lack of awareness regarding cancer symptoms and their screening methods in the common public in India especially among rural women. (6,7,8) But the studies depicting the gender differences in the cancer awareness from rural areas were lacking. Hence, this study was carried out.

Aims & Objectives

1. To assess the awareness regarding various aspects of cancer occurrence, diagnosis and management among rural population.
2. To assess the gender differences in the cancer awareness among the study population.

Material & Methods

Study Type: A community based cross-sectional study was done in the rural field practice area of a teaching hospital in South India. This study was done as part of another main study which was among which focused on risk factors for Non-communicable disease awareness.

Study area & Population: The study population included adults who are permanent residents of the field practice area of Kancheepuram District in Tamil Nadu, India. Out of 9 villages in the field practice area, 4 were selected by convenient sampling.

Exclusion Criteria: People who were temporary visitors were not included.

Sample size: On assuming awareness of cancer as 50 %, using the formula $4pq/l^2$ the minimum calculated sample size was 400. However, we were able to collect 414 samples.

Data Collection: The required numbers of subjects were selected from the households of the selected villages by systematic random sampling.

All the recruited subjects were residents of the village and were interviewed regarding the awareness level, regarding the awareness about the etiology, common sites, presenting complaints, mode of diagnosis, treatment, prevention & methods of prevention.

Ethical approval: As it was only a cross-sectional study with no human intervention, ethical committee approval was not required. Confidentially of the study participants was maintained throughout the study. Informed consent was also obtained.

Data Analysis: Data was analyzed by IBM SPSS version 21. Descriptive analysis was done by mean and standard deviation for quantitative variables, frequency & proportion for categorical variables. The relationship between gender and awareness levels was assessed by cross tabulation and comparison of percentages, using Chi-square test. A p value of less than 0.05 was considered to be statistically significant.

Results

A total of 414 subjects were included in the final analysis. Among the study population, 68 (16.43%) participants were aged between 15 to 25 years, 120 (28.99%) participants were aged between 26 to 35 years.10.87% participants were aged between 56 to 65 years and 24 (5.80%) participants were aged >66 years. Among the study population, 183 (44.20%) participants were males. Among the study population, 357 (86.23%) participants were living in pucca type of housing and 47 (11.35%) participants had family history of cancer. (Table 1)

Among the study population, 392 (94.69%) participants had heard of cancer ans 252 (60.87%) participants had heard of cancer mostly through Television, 62 (14.98%) participants had heard of cancer through neighbours, 24 (5.80%) participants had heard of cancer through books and 19 (4.59%) participants had heard of cancer from hospital sources. (Table 2)

The knowledge assessment of the participants showed that 47 (11.4%) participants had knowledge of breast cancer, 45 (10.9%) participants had knowledge of oral cancer, 24 (5.8%) participants had knowledge on lung cancer, 22 (5.3%) participants had had knowledge of all the cancer parts and 199 (48.1%) participants had knowledge of other sites of cancer. Also, a few of the subjects also mentioned about frequent consumption of food in plastic materials. When asked about the cause of cancer, most participants 116 (28.02%) indicated smoking as cause of cancer,11(2.65%) answered obesity to be the cause and 4 (0.97%) answered alcohol.

Among the study population, 50 (12.08%) participants believed lump as a common symptom cancer. (Table 3).

Majority (68.4%) did not know about the methods of diagnosis of cancer. Blood test was believed to be the most important way to diagnose cancer by majority of the subjects (11.8%), followed by Biopsy, scan and x-ray. Also, the proportion people who were not aware of any treatment methods was very high among the study population (71.74%). The majority (60.87%) felt that specialty cancer institute is the ideal place for treatment and more than one fourth of participants felt government hospital as the right place. (Table 4)

Among the study population, 242 (58.5%) participants believed that cancer was preventable. Participants believed that good food habits 55 (20.2%), hygiene 39 (14.3%), alternative medicine 3 (1.1%) and early diagnosis 52 (19.1%) prevented cancer.78 (18.84%) participants believed early diagnosis and treatment as a cure to cancer, 59 (14.25%) participants answered surgery, 43 (10.39%) participants believed chemotherapy and radiotherapy and 27 (6.52%) participants believed other treatments to cure cancer. (Table 5)

The proportion of people, who had heard of cancer was similar between genders. Among the male participants, majority 67 (36.60%) of participants had reported smoking, followed by tobacco and others as a cause of cancer. Among the female participants, the majority 92 (39.80%) of participants had reported other cause of cancer, followed by smoking, tobacco and hereditary (Table 6)

Discussion

This study was carried out on a total of 414 adult subjects in the field practice area attached to a tertiary care teaching hospital. Majority (55.80%) of the subjects were females. 86.23% of participants had a pucca type of housing. .94.69% of study population reported they had heard of cancer. 60.87% had heard of cancer by TV. Breast (11.4%), Oral (10.9%), Lung (5.8%), All parts (5.3%), Stomach (1.9%), Cervix (0.7%) were the commonly known sites of cancer. 48.1% of subjects felt that other sites (48.1%) were involved (need broad classification of other sites or systems eg-lymphatic nodes etc.) In the study by Veera kumar AM around 40% reported that lung and oral cancers are common in men while 32% reported breast cancer was common cancer affecting women followed by Uterine and cervical cancer. In our study Smoking (28%), Tobacco (23.9%) and other causes (33.09%) were the commonly known causes of cancer. 18.6% believed cancer was communicable while 12% believed lump was the symptom of cancer. (6) Unusual bleeding or discharge 124 (41.6%) was the most common symptom of cancer as perceived by the subjects in the study by Veera kumar AM et al with lump or swelling reported by 23.1%.(6) Similar to our study regarding risk factors of common cancer, smoking was reported by majority (65%) followed by chewing tobacco (59%) and alcohol intake (46.5%).(5) In our study, 58.5% thought cancer was preventable while 62.5% thought cancer was curable. The study done in Mumbai by Kumar et al. has found that around 55% perceived cancer could be preventable similar to our study. (7) This mild difference in proportion from our study could be due to the difference in the population characters. Hence, health education regarding the harmful effects of tobacco can discourage its use. Besides that, the awareness program should focus mainly on other risk factors such as physical activity, avoiding obesity, healthy dietary practices, reducing occupational and environmental exposures, reducing alcohol use, immunization against hepatitis B virus, and safe sexual practices for avoiding cancer genesis to people. Similar studies done in Mumbai slums also found that awareness regarding symptoms, risk factors, and screening methods of common cancer was low. (7) Women neglect their health and they seldom go out of their home and work. Hence, there are more chances of them being unaware of the cancer risk factors, symptoms and their management compared to their male counterparts. (9)

Although Knowledge regarding site of cancer, its cause, treatment, prevention was comparable between males and females, on a whole, it was suboptimal in males compared to females. There was no significant difference in Knowledge regarding cancer site, cause, treatment and prevention in females and males. Most of the population was hardly aware of other risk factors such as industrial radiation, early child-bearing, nulliparity, and overweight. Similar results were found in various studies done in India by Raj et al. (10) Moreover, health education activities hardly publicize other important risk factors such as consumption of alcohol and red meat, industrial radiation, early child-bearing, nulliparity, and overweight. Rural

women have suboptimal knowledge of cancer and its prevention, treatment. (11,12) As a result of the poor awareness about signs and symptoms, population might not pay much attention to important but less known symptoms. Such a poor awareness might cause a delay in detection of cancers. (13) Bansal AB et al in their study observed that although women had suboptimal level of knowledge regarding cervical cancer, their attitude is favorable for screening. (8) Around one-third of deaths from cancer are due to the 5 leading behavioral and dietary risks. They are high body mass index, low fruit and vegetable intake, lack of physical activity, tobacco use, and alcohol use.3 In the meta -analysis of observational studies from 1985 to 2011, Dobbins M eat al observed a significant and sometimes a strong and positive association between obesity and cancer incidence. (14) In the present study 11(2.65%) participants believed obesity to be an independent risk factor for cancer. The main driver for obesity is an overall rise in caloric intake with modern eating and snacking patterns increasing the intake of high carbohydrate beverages and dietary fats compounded by physical inactivity and poorly understood genetic factors. Renehan AG et al also observed that increased BMI is associated with increased risk of malignancies and for certain types of cancers, associations differ between sexes and populations of different ethnic origins. (15) Kyrgiou M et al also observed that there is a strong association for 11 cancers with adiposity (oesophageal adenocarcinoma, multiple myeloma, and cancers of the gastric cardia, colon, rectum, biliary tract system, pancreas, breast, endometrium, ovary, and kidney). (16)

Dorak MT et al in their study opined that there are gender differences in susceptibility to cancer and this area is largely not addressed. Tobacco use is the most important risk factor for cancer and is responsible for approximately 22% of cancer deaths. (17) Cancer causing infections, such as hepatitis and human papilloma virus (HPV), are responsible for up to 25% of cancer cases in low- and middle-income countries. The economic impact of cancer is significant and is increasing.

Conclusion

The present study found that the awareness level of cancer based on all the domains such as symptoms, risk factors, screening, prevention, and treatment methods for cancer. Very few studies assessed the awareness level based on all the domains of cancer.

Though there may difference in susceptibility with regards to development of cancer among males and females, our study results did not show any statistically significant difference between males and females with respect to knowledge on prevention methods of cancer, method to cure and appropriate place of treatment. On the whole, the knowledge regarding cancer was suboptimal.

Recommendation

If health education activities focused only one particular domain, the desired effect may not be achieved. Hence, health education materials to the public should focus all the domains regarding cancer.

Limitation of the study

The study being confined to limited study area, the external validity if the study is therefore limited.

Relevance of the study

Our study would help the program officers and health educators to prepare about health education materials for cancer using the various domains.

Authors Contribution

RR & DK – Concept, Study design, Data collection, Data Analysis, Manuscript writing, drafting and final approval. RK & GK – Literature review, Data analysis, manuscript writing and drafting.

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Tables

TABLE 1 DESCRIPTIVE ANALYSIS OF DEMOGRAPHIC PARAMETERS IN THE STUDY POPULATION (N=414)

Demographic parameters	Frequency	Percentages
Age group		
15-25	68	16.43%
26-35	120	28.99%
36-45	111	26.81%
46-55	46	11.11%
56-65	45	10.87%
66 and Above	24	5.80%
Gender		
Male	183	44.20%
Female	231	55.80%
Type of Housing		
Pucca	357	86.23%
Katcha	23	5.56%
Semi-Pucca	34	8.21%
Family History		
Yes	47	11.35%
No	363	87.68%
No Idea	4	0.97%

TABLE 2 OVERALL AWARENESS AND SOURCE OF INFORMATION

	Frequency	Percentages
Heard of Cancer		
Yes	392	94.69%
No	22	5.31%
Source of Information		
TV	252	60.87%
Neighbours	62	14.98%
Books	24	5.80%
Don't Know	23	5.56%
Hospitals	19	4.59%
Both TV and Neighbours	18	4.35%
Books and TV	9	2.17%
Seeing Cancer Patients	7	1.69%

TABLE 3 KNOWLEDGE RELATED TO SITE AND THE CLINICAL PRESENTATION OF CANCER

	Frequency	Percentage
Site of Cancer		
Others	199	48.1%
Breast	47	11.4%
Oral	45	10.9%
Lung	24	5.8%
All parts	22	5.3%
Stomach	8	1.9%
Cervix	3	0.7%
Don't Know	66	15.9%
Most common cause of Cancer		
Others	137	33.09%
Smoking	116	28.02%
Tobacco	99	23.91%
Hereditary	29	7.00%
Food Habits	12	2.89%
Alcohol	4	0.97%
Obesity	11	2.65%
Don't Know	6	1.45%
Most common Symptoms		
Lump	50	12.08%
Bleeding	26	6.28%
Pain	17	4.11%
Loss of weight and appetite	12	2.90%
Coughing	11	2.66%
Others	8	1.93%
Don't Know	290	70.04%
Communicability		
Yes	77	18.60%
No	282	68.12%
No Idea	55	13.29%
Warning signs Awareness		
Yes	1	0.24%
No	413	99.76%

TABLE 4 KNOWLEDGE RELATED TO DIAGNOSIS AND TREATMENT OF CANCER

	Frequency	Percentage
Method of detection		
Blood test	49	11.8%
Biopsy	52	12.6%
Scan and X-ray	18	4.3%
Breast Examination	4	1.0%
Others	4	1.0%
Pap Smear	3	0.7%
Urine test	1	0.2%
Don't Know	283	68.4%
Treatment Methods		
Chemotherapy	41	9.90%
Radiotherapy	27	6.52%
Surgery	35	8.45%
Others	14	3.38%
Don't Know	297	71.74%
Place of treatment		
Cancer institute	252	60.87%
Govt hospital	105	25.36%
Private Hospital	52	12.56%
Others	5	1.21%

TABLE 5 PERCEPTIONS REGARDING THE PREVENTABILITY AND CURABILITY OF CANCER

	Frequency	Percentage
Preventable		
Yes	242	58.5%
No	123	29.7%
Don't know	49	11.8%
How to Prevent		
Good Habits	55	20.2
Hygiene	39	14.3
Alternative Medicine	3	1.1
Early Diagnosis	52	19.1
No Idea	123	45.2
Curable		
Yes	260	62.80%
No	115	27.78%
Don't Know	39	9.42%
Methods to Cure		
Early Diagnosis & Treatment	78	18.84%
Surgery	59	14.25%
Chemotherapy & Radiotherapy	43	10.39%
Others	27	6.52%
Don't Know	207	50.00%

TABLE 6 GENDER DIFFERENCES IN AWARENESS RELATED TO KEY ASPECTS OF CANCERS

	Gender		Chi square	P-value
	Male (N=183)	**Female (N=231)**		
Heard of Cancer				
Yes	169 (92.3%)	223 (96.5%)	0.352	0.059
No	14 (7.7%)	8 (3.5%)		
Symptoms				

Bleeding	16 (8.70%)	10 (4.30%)	23.58	0.99
Loss of Weight and Appetite	4 (2.20%)	8 (3.50%)		
Lump	19 (10.40%)	31 (13.40%)		
Pain	5 (2.70%)	12 (5.20%)		
Coughing	6 (3.30%)	5 (2.20%)		
Others	4 (2.20%)	4 (1.70%)		
Don't Know	129 (70.49%)	168 (72.7%)		
Treatment Methods				
Chemotherapy	15 (8.20%)	26 (11.30%)	2.679	0.613
Radiotherapy	15 (8.20%)	12 (5.20%)		
Surgery	17 (9.30%)	18 (7.80%)		
Others	6 (3.30%)	8 (3.50%)		
Don't Know	130 (71.00%)	167 (72.30%)		
Preventable				
Yes	103 (56.3%)	139 (60.2%)	1.201	0.549
No	55 (30.1%)	68 (29.4%)		
Don't know	25 (13.7%)	24 (10.4%)		
Methods to Cure				
Early Diagnosis & Treatment	33 (18.00%)	45 (19.50%)	6.189	0.185
Chemotherapy & Radiotherapy	21 (11.50%)	22 (9.50%)		
Surgery	34 (18.60%)	25 (10.80%)		
Others	10 (5.50%)	17 (7.40%)		
Don't Know	85 (46.40%)	122 (52.80%)		
Place of treatment				
Govt hospital	49 (26.8%)	56 (24.2%)	3.117	0.374
Pvt. Hospital	22 (12.0%)	30 (13.0%)		
Cancer institute	108 (59.0%)	144 (62.3%)		
Others	4 (2.2%)	1 (0.4%)		
No	182 (99.5%)	231 (100.0%)		