

Cancer Warning Symptoms Awareness and Associated Factors Among Individuals Living in Assella Town, Ethiopia

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Abstract

Introduction: Community awareness about cancer warning symptoms and risk factors in the general population is essential and can be considered as a basis for cancer control programs. Since Patients are rarely aware of the early warning symptoms and cancer risk factors, the burden of disease is increasing everywhere in the world. Evidences has been shown that cancer is highly prevalent in Ethiopia in which the diagnosis is made at later stages of the disease.

Objective: To assess Cancer Warning Symptoms awareness and associated factors among individuals living in Assella Town, Ethiopia.

Methods: A community-based cross-sectional study was employed in Assella town from May 1st to June 1st, 2020 among 410 adult residents 18 years old and above. A systematic random sampling technique was employed to select the households from which the study subjects randomly identified. Data were collected through face-to-face interview by using pre-tested structured questionnaire and entered into Epi data version 3.1 then exported to SPSS version 25.0 for analysis. Logistic regression analyses were used to identify factors associated with outcome variables. Odds ratio and 95% CI at P-values <0.05 was used to determine the presence of association.

Results: The findings of this study revealed that the overall level of awareness of cancer warning symptoms is 214 (52.2% (AOR = 95% CI 47.1, 56.8)). Educational level (AOR = 3.44, 95%CI, 1.50–7.88 (p = 0.003)), awareness of cancer risk factors (AOR = 2.56, 95% CI, 1.67, 3.93, (p < 0.001)) and economic status (AOR = 3.13 (95% CI 1.84, 5.33, p < 0.001)) were identified as factors significantly associated with awareness of cancer warning symptoms among adult populations.

Conclusion: Almost one-out-of-two adults residing in Assella town has awareness about cancer warning symptoms. Educational level, awareness of cancer risk factors, and economic status among Assella town residents were identified as factors associated with good level of awareness about cancer warning symptoms.

Keywords

Awareness, Cancer warning symptoms, Adult population, Community, Ethiopia

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Background

Cancer is a group of diseases characterized by the uncontrolled growth and spread of abnormal cells. It accounts for 21% of death worldwide (Al-Azri, Al-Hamedi, Al-Awisi, Al-Hinai, & Davidson (2015)). The cancer cells possess abnormalities in the regulating of cell division and survival (Veerakumar, Kar., 2017) by mutation which results in the DNA defect by ignoring growth-regulating signals in the environment surrounding the cell, invading tissue and metastasizing to the distant organs ((Islam et al., 2017; WHO 2018, (Bray et al.,

2018; Jemal & Brawley, 2019; Yohannes, Belaineh, & Alula, 2013)).

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Public awareness about cancer warning symptoms and risk factors in the general population is essential and the basis for cancer control programs (Memirie et al., 2018). Since Patients are rarely aware of the early warning symptoms and cancer risk factors, the burden of disease is increasing everywhere in the world ((Fidler et al., 2017) (Siegel & Miller, 2020)). Evidence has shown that cancer is highly prevalent in Ethiopia in which the diagnosis is made at a later stage of the disease ((Islam et al., 2017; World Health Organization, 2013), WHO. WHO fact sheet on cancer, Switzerland, Geneva 2018)).

The alarming warning symptoms of cancer include but are not limited to changes in bowel and bladder habits, abdominal pain, sore that does not heal, unusual bleeding or discharge from the body orifices, thickening or a lump in the breast or elsewhere, chronic indigestion & swallowing problems, change in a wart, nagging cough, hoarseness, shortness of breath, and unexplained weight loss (Nelson, 2018). The importance of public awareness regarding warning symptoms of cancer is to improve early case detection, diagnosis, and survival rates (Sung, Ferlay, Siegel, Laversanne, Soerjomataram, Jemal, & Bray, (2021)).

Review of Literatures

Globally the magnitude of cancer among adults showed 975,396 new cases and 358,392 deaths, which is equated to an age-standardized rate (AGR) of 43.3 new cases and 15.9 deaths per 100,000 people per years (Islam, Billah, Hossain, & Oldroyd., 2017). Worldwide in both sexes, lung cancer is the most commonly diagnosed (11.6%) and the leading cause of cancer death (18.4%) (Fitzmaurice et al., 2015).

The overall burden of cancer in the world is projected to continue to rise, particularly in developing countries; most likely 21 million people will be diagnosed as new cases, and 13 million will die of cancer in 2030. Although the incidence of all cancers is twice as high in more developed countries, mortality rate is only 8% to 15% (Ethiopian Federal Ministry of Health (2015)).

Cancer is still one of the major public health problems worldwide (Fidler et al., 2017). In Ethiopia, it is the second leading cause of death among the adult population (Bray et al., 2018). The global cancer burden is estimated to rise in the next successive decades. This implies that 1 in 5 men and 1 in 6 women worldwide may develop cancer during their lifetime. Worldwide, the total number of people who will survive after 5 years of a cancer diagnosis is estimated to be 43.8 million (World cancer, Cancer fact sheet, 2018).

Different studies in different parts of the world revealed different levels of cancer warning symptoms awareness and different factors affecting level of cancer warning symptoms awareness among adult population. More specifically, a study conducted in India showed average awareness (Thoudam & Sakhardande (2018)). Another study conducted in Lebanon on colorectal cancer revealed

that 67% of respondents were not aware (Tfaily et al. (2019)). A study conducted in Indonesia on public awareness of common cancer symptoms among adult population showed 53.2% of the study the respondents had adequate awareness (Wimardhani et al., 2019). A study conducted in Saudi Arabia showed that 42.5% of the study participants recognized awareness of cancer warning symptoms (Ravichandran, Mohamed, & Al-Hamdan, 2010). A study conducted in Tanzania regarding awareness of cancer warning symptoms showed 71% reported correct warning symptoms of cancer (Munishi, McCormack, Mchome, Mangi, Zullig, Bartlett, Mmbaga (2020)). A similar study conducted in Morocco on public awareness about cancer risk factors showed only 2.2% level of awareness about cancer among the study participants (El Rhazi, Bennani, El Fakir, Boly, Bekkali, Zidouh, & Nejjari (2014)). A study conducted in China revealed that 47.0% of the participants had low awareness about the warning symptoms of gastric cancer (Liu, Zeng, Wang, Huang, Huang, Liu & Zeng (2019)).

In Ethiopia, cancer accounts for about 5.8% of total national mortality. Although population-based data do not exist in the country, it is estimated that the annual cancer incidences were around 60,960 cases and the annual mortality over 44,000. For people under the age of 75 years, the risk of being diagnosed with cancer is 11.3% and the risk of dying from the disease is 9.4%. (Swinburn et al., 2011).

Awareness of cancer warning symptoms, cancer screening and early detection can reduce the risk of cancer-related morbidity and mortality. Successful national cancer control policies and programs will help to raise awareness of cancer, reduce exposure to risk factors, support the adoption of healthy lifestyles, and increase the proportion of cancers detected early Bray, Ferlay, Soerjomataram, Siegel, Torre, & Jemal, (2018). The positive effects of good awareness about cancer warning symptoms will significantly help for early detection and diagnosis of cancer ((Thoudam & Sakhardande, 2018), (Hvidberg, Pedersen, Wulff, & Vedsted (2014)), (Tfaily et al., 2019))). In contrary to this, poor awareness may lead to delayed detection, diagnosis and poor cancer survival (((Pedgaonkar et al., 2012; Schliemann et al., 2020), (Al-Azri, Al-Hamedi, Al-Awisi, Al-Hinai, & Davidson (2015)))).

However, there is a scanty of information in Ethiopia on the extent to which the adult population were aware of cancer warning symptom which is crucial and cost-effective for prevention and treatments of cancer.

Purpose of This Study

The main purpose of this study is to assess Cancer Warning Symptoms Awareness and associated factors among individuals living in Assella town Ethiopia.

Methods and Materials

Study Design

A community-based cross-sectional study was employed.

Research Questions

The main questions in this study include:

1. What is the level of cancer warning symptoms awareness among the adult population in the study area?
2. What are factors associated with cancer warning symptoms awareness among the adult population in the study area?

Study Setting

The study was conducted in Assella town from May 1st to June 1st, 2020. Assella town is located 175-kilo meter south-east of Addis Ababa. The town is found in the Oromia Regional state as an administrative town of Arsi Zone. According to the 2007 central statistics agency (CSA) of Ethiopia report, the town has a total population of 65,250 with a growth rate of 2.99% and the town has 22,564 households. The town has 08 Kebeles (the smallest administrative units in Ethiopia). The town has one referral, general, and primary hospital, three health centers, eighteen medium clinics, seventeen pharmacies, and thirty drug stores.

Sample

A total of 422 adult participants were selected by using standard sample size calculation formula for single population proportion.

Inclusion and Exclusion Criteria

Inclusion criteria: Adult population whose age greater than or equal to 18 years old and reside in the study area for at least 6 months.

Exclusion criteria: Respondents with hearing impairment, speaking problems and critical illness during the data collection period.

Sampling procedure and Personnel: First, the lists of all Kebeles were identified from Assella town municipality. Then the list of households residing in each Kebele was obtained from Urban Health Extension Workers at each Kebele. Then the required sample size from each Kebele was allocated proportionally to the size of participants in each Kebele. Systematic random sampling was used to select households and the first household was selected by lottery method. When the eligible participants in one selected household was more than one, only one respondent was

selected by simple random sampling using the lottery method. Trained nurses collected the data by face-to-face interviews using a pre-tested and structured 'Afan Oromo' and 'Amharic' language version questionnaire. The data collection process was supervised by one BSc nurse and the principal investigator.

Data Collection instrument: The questionnaire for this study was adapted from different previous studies, (Feizi et al., 2011), (Shahrakivahed, Hashemi, & Sarabandi, 2016), (Ravichandran, Mohamed, & Al-Hamdan, 2010), (Crane et al., 2016), (Pan et al., 2017), (Munishi et al., 2019), (Rhazi et al., 2014)). The tool is comprised of six parts namely socio-demographic factors, family history of cancer, awareness of cancer risk factors, source of information, health-seeking behaviors of the respondents, and awareness about cancer warning symptoms. Regarding validity and reliability of the data collection tools, the authors adapted valid tools and contextualized them to local context using a panel of expert to maintain validity. Chrombach's alpha was done and found 07 questions have good ($\alpha \geq 0.85 < 0.9$) and excellent ($\alpha \geq 0.9$) score on pre-test.

Awareness towards cancer warning symptoms: Awareness of cancer warning symptoms was measured by 11 different items which was adapted from cancer research UK Cancer Awareness Measure (CAM) Toolkit (Version 2.1). A score of 1 point was given for a correct answer (yes), otherwise 0 (no). The total score of awareness of cancer warning symptoms was computed (possible range: 0–11) and dichotomized into poor and good awareness if less than the mean value and greater or equal to the mean value respectively (Simon et al., 2012).

Awareness about cancer risk factors: Awareness of cancer risk factor was assessed by using a pretested questionnaire which were adapted from cancer research UK Cancer Awareness Measure (CAM) Toolkit (Version 2.1) which has a satisfactory internal reliability test (Chrombach's alpha > 0.7). Respondents could answer yes/no for 13 items used to measure cancer risk factors. The answers of agree and strongly agree were scored as one (1), disagree and strongly disagree were scored as zero (0). Then the overall level of awareness about cancer risk factor was categorized as poor and good considering the mean value as a cutoff point.

Wealth status: It was measured by using 25 items which was used to assess the household assets. Wealth index Households are given scores based on the number and kinds of goods participants own, ranging from a television to a bicycle or car, in addition to a source of drinking water, toilet facilities, and flooring materials. National wealth quintiles were compiled by assigning the household score to each usual household member, ranking each person in the household population by her or his score, and then dividing the distribution into three equal categories (Low, Medium and High) each comprising 33.33% of the population (EDHS 2016).

Awareness about cancer risk factors: Having a good awareness about cancer risk factors was found if respondents responded equal or greater than the mean score from the 13 cancer awareness measurement items and poor awareness was found when they had responded below the mean score of 13 cancer risk factors items.

Health Seeking Behavior: In this study, health-seeking behavior was defined as any action undertaken by individuals who became ill and or perceive to be ill to find an appropriate solution for his/her health problems.

Data Quality Management: The questionnaire was prepared in the English language, and then it was translated into Afan Oromo and Amharic version and then retranslated back to English by the expert to ensure consistency of the instrument. Training was given for one day for four data collectors and one supervisor to ensure the understandability of the questionnaire and the data collection procedures. Additionally, pre-test was done among 5% of the total sample size to insure reliability, validity, clarity and sequences of the data collection tools in Iteya town which is different from the study area before the actual data collection time. The result of the pre-test showed Chrombach's Alpha (0.73 to 0.96) for different parts of the data collection tools. Data coding and cleaning was performed by cross-checking the printout data for obvious errors. The collected data was reviewed and cross-checked for its completeness during and after data collection by the supervisor and principal investigator. Finally, supervision was carried out throughout the data collection period.

Ethical Considerations and Institutional Review Board Approval

Ethical clearance and letter of approval for the study was obtained from the Ethical Review Board of Jimma University, institution of health and letter of permission was taken from Assella town administration, health office and Kebele administration in which the participants were selected. Oral consent was obtained from each study participant after the objectives of the study were explained. The participations were informed as participation in this study was fully voluntarily and they could withdraw from the interview if they were unhappy during the interview. The confidentiality of responses was maintained throughout the research process.

Statistical Analysis

The data was checked, cleaned and entered into EPI data version 3.1 statistical software then exported to SPSS version 25.0 for analysis. Descriptive statistics (mean, standard deviation, and cross-tabulations) were used to describe the study variables. Bivariate and multivariable logistic regression analysis were performed to identify the candidate

variables & factors affecting the level of awareness of cancer warning symptoms among the study participants respectively after checking the assumptions. Those variables with a p-value less than 0.05 with AOR 95% confidence interval was considered as statistically significant in multivariable analysis. Finally, the results were presented using a charts, graphs, and frequency tables.

Results

Socio-Demographic Characteristics of the Samples

Among 422 selected participants of the adult population, 410 were interviewed yielding the response rate of 97.16%. The mean age of the respondents was 40.9 ± 11.94 years with 28.0% in the age range of 30–39 years. Regarding religion, 146 (35.6%) of the respondents were Muslims. Half of the respondents (50.5%) were Oromo followed by Amhara 106 (25.9%) on their ethnicity. Regarding their marital status,

Table 1. Socio-Demographic Characteristics of Adult Populations in Assella Town, Oromia Region, Ethiopia, 2020 (n = 410).

Study Variables	Categories	f	%
Sex	Female	252	61.5
	Male	158	38.5
Age	19–29	70	17.1
	30–39	115	28.0
	40–49	109	26.6
	50–59	81	19.8
	60–69	35	8.5
Ethnicity	Oromo	207	50.5
	Amhara	106	25.9
	Tigre	52	12.7
	Gurage	41	10.0
	Others ¹	4	1.0
Religion	Orthodox	145	35.4
	Muslim	146	35.6
	Protestant	93	22.7
Marital status	Catholic	26	6.3
	Single	72	17.6
	Married	273	66.6
	Divorced	20	4.9
Educational status	Widowed	45	11.0
	Cannot read and write	40	9.8
	Can read and write	85	20.7
	Primary	63	15.4
	Secondary	126	30.7
Occupational status	Above 12	96	23.4
	Government employee	88	21.5
	Merchant	101	24.6
	Self-employee	137	33.4
	Farmer	19	4.6
	Others ²	65	15.9

Others 1 = indicates Silte, Sidama Others 2 = indicates House wife, daily laborer

slightly more than two thirds (273/66.6%) of the study participants were married. For the educational status, 126 (30.7%) of the study participants attended their secondary school whereas the rest 96 (23.4%) attended higher education. Concerning the respondents occupational status, about one third 137 (33.4%) of the study participants worked as a self-employee (Table 1).

Family History of Cancer

Regarding to family history of cancer 64 (15.6%) study subjects had a family history of cancer and the rest 346 (84.4%) do not have any family history of cancer (Figure 1).

Research Question Results

The Level of Awareness about Cancer Risk Factors

More than half 234 (57.1%) of the respondents reported they have been aware of cancer risk factors. The level of awareness of cancer risk factors was 53 (75.7%) within the age group of 19–29. About 73% of the study participants who had a good awareness of cancer risk factors attended their higher education (Table 2).

Sources of Information Regarding to Awareness of Cancer Warning Symptoms

The majority of the respondents 332 (81.0%) reported they heard information about the warning symptoms of cancer from multiple sources. Nearly two thirds (65.4%) of the

respondents used television as a source of information for warning symptoms of cancer and the rest one third of respondents used health professionals as a source of information about warning symptoms of cancer.

Health Seeking Behavior of the Study Participants

During the study period more than two-thirds 294 (71.7%) of the study participants had experienced at least one type of health problem. Among the respondents who had experienced health problems 246 (83.7%) respondents had visited health care providers within two days of the onset of health problems. Similarly, 48 (16.3%) respondents had visited health care providers after more than three days of the onset of health problems. Similarly, 194 (66.0%) respondents had consulted physicians at the clinic or hospital for their first treatment while 24 (8.2%) participants had contacted a traditional practitioner (Table 3).

Awareness of Cancer Warning Symptoms

Regarding items used to measure awareness of cancer warning symptoms among study participants about 189(46.1%) of study subjects responded unexplained lump or swelling could be a symptom of cancer. Among the study subjects participated in this study, 182(44.4%), 216(52.7%),109(26.6%), and 116(28.3%) responded persistent unexplained pain, unexplained bleeding, persistent cough and hoarseness and persistent change of bowel habit respectively could be a warning symptoms of cancer (Table 4).

Regarding awareness of cancer warning symptoms, slightly more than half 214 (52.2% (95% CI 47.1–56.8)) of the respondents had a good awareness about cancer warning symptoms (Figure 2). The level of awareness about cancer warning symptoms was 135 (53.6%) among females. Similarly, the level of awareness of cancer

Table 2. Socio-Demographic Variance About the Level of Awareness of Cancer Risk Factors and Sources of Information About Cancer Warning Symptoms among Adult Population in Assella Town Ethiopia, 2020.

Study Variables (N = 410)	Level of Awareness about Cancer Risk Factors			
	Category	Good n (%)	Poor n (%)	Total n (%)
Sex	Female	131 (52.0)	121 (48.0)	252 (61.5)
	Male	103 (65.2)	55 (34.8)	158 (38.5)
Age	19–29	53 (75.7)	17 (24.3)	70 (17.1)
	30–39	61 (53.0)	54 (47.0)	115 (28.0)
	40–49	57 (52.3)	52 (47.7)	109 (26.6)
	50–59	43 (53.1)	38 (46.9)	81 (19.8)
	60–69	20 (57.1)	15 (42.9)	35 (8.5)
Educational status	Cannot read and write	18 (45)	22 (55)	40 (9.8)
	Can read and write	42 (49.4)	43 (50.6)	85 (20.7)
	Primary	31 (49.2)	32 (50.8)	63 (15.4)
	Secondary	73 (57.9)	53 (42.1)	126 (30.7)
	Above 12	70 (72.9)	26 (27.1)	96 (23.4)

Table 3. Health Seeking Behavior among Adult Populations in Assella Town, Oromia Region, Ethiopia, 2020.

Study Variables	Categories	f	%
Have experienced any health problem (n = 294)	Yes	294	71.7
	No	116	28.3
Within how many days visited health care provider (n = 294)	Within two days	246	83.7
	More than three days	48	16.3
Place for treatment in the first step (n = 294)	Consult physician at clinic or Hospital	194	66.0
	Consult pharmacist/ pharmacy outlet	61	20.7
	Seeking traditional practitioner	24	8.2
	Self-medication	15	5.1

Table 4. Items Used to Measure Cancer Warning Symptoms Awareness among Adult Population in Assella Town Oromia Region, Ethiopia, 2020.

Items about Cancer Warning Symptoms	Response	f	%
An unexplained lump or swelling	Yes	189	46.1
	No	221	53.9
Persistent unexplained pain	Yes	182	44.4
	No	228	55.6
Unexplained bleeding	Yes	216	52.7
	No	194	47.3
A persistent cough or hoarseness	Yes	109	26.6
	No	301	73.4
A persistent change in bowel or bladder habits	Yes	116	28.3
	No	294	71.7
Persistent difficulty swallowing	Yes	112	27.3
	No	298	72.7
A change in the appearance of a mole	Yes	132	32.2
	No	278	67.8
A sore that does not heal	Yes	172	42.0
	No	238	58.0
Unexplained night sweats	Yes	99	24.1
	No	311	75.9
Unexplained weight loss	Yes	107	26.1
	No	303	73.9
Unexplained tiredness	Yes	87	21.2
	No	323	78.8

warning symptoms were 39 (55.7%), 55(47.8%), 57(52.3%), 41(50.6%) and 22 (62.9%) among the age groups of 19–29, 30–39, 40–49, 50–59 and greater than or equal to 60 years respectively. Government employees had 52 (59.1%) level of awareness about cancer warning symptoms.

Factors Associated with Awareness of Cancer Warning Symptoms

To identify factors affecting the level of awareness about cancer warning symptoms, bivariate and multivariable logistic regression analysis were done. Accordingly, educational

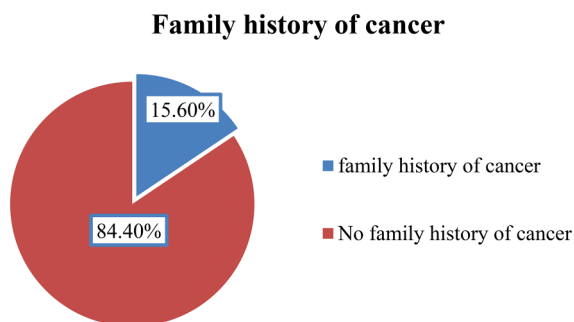


Figure 1. Family history of cancer among adult populations in Assella town Ethiopia, 2020.

Level of Awareness about Cancer Warning Symptoms

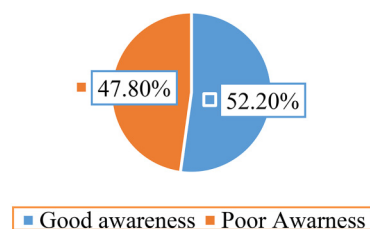


Figure 2. Awareness of cancer warning symptoms among adult populations in Assella town, Oromia region, Ethiopia, 2020.

status, family history of cancer, information about warning symptoms of cancer, experience of health problems, awareness of cancer risk factors and wealth status were found to have an association with awareness about cancer warning symptoms at P-value less than or equal to 0.25. In multivariable logistic regression analysis, educational status, awareness of cancer risk factors and wealth status were found to have statistically significant association with awareness of cancer warning symptoms at p-value less than 0.05. Respondents who had attended their higher educational level were 3.4 times (AOR = 3.44; 95% CI, 1.50–7.88 (p = 0.003)) more likely to have awareness about cancer warning symptoms than those who had could not read and write. Similarly, respondents who had awareness about cancer risk factors were 2.5 times (AOR = 2.56; 95% CI, 1.67–3.93, (p < 0.001)) more likely to have better awareness about cancer warning symptoms than those who had no awareness of cancer risk factors. Additionally the study participants who had high level of wealth status were 3.13 times (AOR = 3.13; 95% CI 1.84- 5.33, p < 0.001)) more likely to have awareness about cancer warning symptoms compared to respondents who had low level of wealth status (Table 5).

Discussion

This study assessed the level of awareness about cancer warning symptoms and factors associated with the adult population in Assella town. The overall finding showed that slightly more than half (52.2% (95% CI 47.1, 56.8)) of the study participants had an awareness about early cancer warning symptoms with slight variation with educational level, awareness of cancer risk factors, and wealth status. This indicates that the majority of the study participants had awareness about cancer warning symptoms likely at a later stage of the cancer disease process which could negatively affect survival rate (Islam, Billah, Hossain, & Oldroyd., 2017). This finding implies the need for creating awareness about cancer warning symptoms in the general population. The finding of this study is in line with a study conducted in Lebanon which showed 50% of respondents had awareness on the warning symptoms of cancer (Rhazi,

Table 5. Binary and Multivariable Logistic Regression Model to Identify Factors Associated with Awareness of Cancer Warning Symptoms among Adult Population in Assela Town, Oromia Region, Ethiopia, 2020.

Study Variables	Category	Level of Awareness		COR 95%CI	AOR 95%CI
		Good n (%)	Poor n (%)		
Educational status	Can't read and write	15(37.5)	25(62.5)	1	1
	Can read and write	42(49.4)	43(50.6)	1.62(0.75, 3.51)	1.82(0.80,4.13)
	Primary	33(52.4)	30(47.6)	1.83(0.81, 4.11)*	2.48(1.04,5.88)**
	Secondary	64(50.8)	62(49.2.)	1.72(0.83, 3.56)	2.08(0.95,4.53)
	Above 12	60(62.5)	36(37.5)	2.77(1.29, 5.95)*	3.44(1.50,7.88)**
Family history	Yes	41(64.1)	23(35.9)	1.78(1.03,3.09)	1.70(0.93,3.13)
	No	173(50.0)	173(50.0)	1	1
Ever heard about warning symptoms	Yes	179(54.6)	149(45.4)	1.61(0.99,2.63)*	1.20(0.69,2.07)
	No	35(42.7)	47(57.3)	1	1
Had awareness towards cancer risk factors	Aware	144(61.5)	90(38.5)	2.32(1.62, 3.62)*	2.56(1.67,3.93)**
	Not aware	70(39.8)	106(60.2)	1	1
Have ever experienced health problem	Yes	163(55.4)	131(44.6)	1.58(1.03,2.44)*	1.31(0.79,2.15)
	No	51(44.0)	65(60.0)	1	1
Wealth status	Low	67(45.0)	82(55.0)	1	1
	Medium	61(48.4)	65(51.6)	1.15(0.71, 1.85)	1.26(0.75,2.11)
	High	86(63.7)	49(36.3)	2.15(1.33,3.46)*	3.13(1.84,5.33)**

Key. ** indicates the independent factors associated with awareness of cancer warning symptoms at $p < 0.05$. COR: Crude Odds Ratio, AOR: Adjusted Odds Ratio, CI: Confidence Interval.

et al., 2014), a study conducted in Mumbai India in which 48.2% of respondents reported good level of awareness (Richards, et al., 2017), and a study conducted in Indonesia which showed 53.2% of respondents had awareness about cancer warning symptoms (Veerakumar, & Kar., 2017).

However, the findings of this study were found to be lower than those of studies conducted in Iran 58.3% (Wimardhani, et al., 2019), Iranian 73.3% (WHO Cancer Fact Sheet, 2018). The discrepancy might be due to the difference in socio-demographic characteristics, educational status and the methodological difference between this study and the study conducted in Iran. Similarly the level of awareness about cancer warning symptoms was 82.0% in Australia (World Cancer, Cancer Fact Sheet, 2018), the possible justification might be due to the fact that the majority of respondents were reported as having a high economic status in Australia whereas the current study only 32.9% of respondents had a high level of economic status. Similarly, the findings of this study were lower than a study conducted in India Pune City which showed the overall awareness of cancer warning symptoms was 67% (Pedgaonkar et al., 2012). The possible justification might be due to variation in the level of education among the study participants in the two study countries. Additionally the level of awareness about cancer warning symptoms among adult populations reported in Tanzania was 90% (Chestnov, 2013). This discrepancy might be due to a difference in sample size and study designs employed in the two studies.

The finding of this study was higher than the study conducted in Oman on public awareness of cancer warning

symptoms which showed 40.6% (Veerakumar, & Kar., 2017). The possible justification might be due to the difference in the level of educational status among the study populations in the two countries which clearly showed 62.9% attended higher education in this study whereas 44.9% participants attended higher education in Oman.

In this study adults who attended higher education were 3.4 times more likely to have awareness about cancer warning symptoms than adults who can't read and write. This finding is also supported by a study conducted in Denmark, Iran, and Saudi Arabia (Ravichandran et al., 2010; WHO. 2018b; Wimardhani et al., 2019). This implies that as the level of education increases, the chance of the individual's exposure to a different source of information to know cancer warning symptoms will increase.

Respondents having awareness of cancer risk factors were 2.5 times more likely to be aware cancer warning symptoms as compared to their counterparts. Additionally the study participants who had high level of economic status were 3.13 times more likely have awareness of warning symptoms of cancer compared to respondents who had a low level economic status. A similar finding was reported from a study conducted in Denmark, Malaysia which showed adults who had a high level of economic status was predictor variable which affected the level of awareness of cancer warning symptoms (Ravichandran et al., 2010)(World Cancer Fact Sheet, 2018). This implies that adults who had a high level of wealth status might have access to information through mass media like televisions and internet to get information about

cancer warning symptoms and may have better experience of visiting health care institutions.

Conclusions: The findings of this study showed that slightly more than half of the adult population residing in Assella town had awareness about cancer warning symptoms. Educational status, awareness of cancer risk factors, and wealth status among residents are found to be associated with the level of awareness about cancer warning symptoms.

Strengths and Limitations

This study tried to explore a very important and timely topic in Ethiopia at the community level which was community awareness about cancer warning symptoms. The awareness at the community level may play a pivotal role for cancer prevention and treatment. On the other hand, this study was limited to the specific town of Oromia Regional state Arsi Zone Assella town and the results may not show the overall level of cancer warning symptoms awareness among the adult population living in Ethiopia. So, other nationwide interventional community-based studies focusing on awareness creation and risk reduction is recommended for future researchers. The other limitation of this study may be lack of similar studies in Ethiopia; so comparison of the results was done with other countries where health policies, coverage and cancer controlling strategies may differ.

Implications for Practice and Research

Giving the right and appropriate attention to cancer warning symptoms is important for early screening, diagnosis and accessing health services. It can be considered as a crucial and contemporary solution for cancer prevention, treatment and control programs. The identification of cancer warning symptoms awareness is recommended by different national and international Health Care Organizations to prevent and control cancer. Community Health teaching strategies aiming to increase level of cancer warning symptoms awareness and associated factors at the grass root level should be considered by nurses working at primary, secondary and tertiary health care facilities.

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Data Availability

The data supporting the findings of this work is available at the hands of the corresponding author.


Declaration of Conflicting Interests

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