



**ADDIS ABABA UNIVERSITY
COLLEGE OF HEALTH SCIENCES
SCHOOL OF NURSING AND MIDWIFERY
POSTGRADUATE PROGRAM**

**AWARENESS OF COLORECTAL CANCER AND ITS
ASSOCIATED FACTORS AMONG ADULT PATIENTS
ATTENDING JIMMA UNIVERSITY MEDICAL CENTER
SOUTH-WEST, ETHIOPIA 2020**

BY: -

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**A RESEARCH THESIS SUBMITTED TO ADDIS ABABA
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JUNE, 2020

ADDIS ABABA, ETHIOPIA

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APPROVAL BY THE BOARD OF EXAMINATION

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STATEMENT OF DECLARATION

By my signature below, I declare and affirm that this thesis is my original work in partial fulfillment of the requirements for the degree of master in clinical oncology nursing. I have followed all ethical principles of scholarship in the preparation, data collection, data analysis, and completion of this thesis. All the sources of the materials used for this thesis and all people and institutions who gave support for this work are fully acknowledged. I affirm that I have cited and referenced all sources used in this document. Every effort has been made to avoid plagiarism in the preparation of this thesis.

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ABBREVIATIONS AND ACRONYMS

AAU	Addis Ababa University
AOD	Adjusted Odds Ratio
CAM	Cancer Awareness Measure
COD	Crude Odds Ratio
CI	Confidence Interval
CRC	Colorectal Cancer
CDC	Center for Disease Control
DCBE	Double-Contrast Barium Enema
DC	Data Collector
DM-2	Diabetes Mellitus Type Two
ETB	Ethiopia Birr
FMOH	Federal Ministry of Health
FOBT	Fecal Occult Blood Test
FAP	Familial Adenomatous Polyposis
HMIS	Health Management and Information System
HNPCC	Hereditary Non-Polyposis Colorectal Cancer
JUMC	Jimma University Medical Center
JUC FM	Jimma University Frequency Modulation
KSA	Kingdom of Saudi Arabia
LMIC	Low and Middle-Income Countries
NCD	Non-Communicable Disease
PI	Principal Investigator
PGCU	Post Graduate Coordination Unit
R. body	Responsible body
SPSS	Statistical Package for Social Science
SSA	Sub-Saharan Africa
UK	United Kingdom

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ABSTRACT

Background: Colorectal cancer (CRC) is the first commonest diagnosed cancer in men and the fourth commonest in women in Ethiopia. The most significant factors that may increase the risk of having CRC were modifiable. These factors were prevented by increasing awareness of the population.

Objective: This study aimed to assess the awareness of CRC and its associated factors among adult patients attending Jimma University Medical Center, South-West Ethiopia, 2020.

Methods: The institution-based quantitative cross-sectional study design was conducted among 422 patients at Jimma University Medical Center from March 8 to April 30, 2020. The study participants were recruited by a systematic random sampling method and data was collected semi-structured interviewer-administered questionnaires. The collected data were entered into Epi data version 4.6.0 and transferred to SPSS version 25. Descriptive, Bivariate and multivariate logistic regression were implemented. The strength of association was determined by using AOR, 95% CI. The statistical level of significance was stated at $P < 0.05$.

Result: A 100% response rate in this study was recorded. More than half (57.6%) of the study participants had low awareness of CRC. The first common and least common risk factors that were known by participants were smoking (78.2%) and aging (32.5%) whereas the most common and least common symptoms were blood in the stool (49.3%) and abdomen lump (33.9%). There is significant association between awareness of colorectal cancer and gender [AOR=1.86; 95% CI (1.26, 2.75)], residency [AOR= 0.45; 95% CI (0.30, 0.67)], monthly income [AOR=4.72; 95% CI (3.11, 7.15)], level of education [AOR=2.83; 95% CI (1.49, 5.37)], information sources [AOR=2.51; 95% CI (1.18,5.37)], and heard about CRC [AOR=4.48; 95% CI (2.90,6.93)].

Conclusion and recommendation: Results showed that awareness of patients towards CRC was inadequate. However, the majority of patients had better awareness of colorectal cancer risk factors. Similarly, participants with high levels of education and females had better awareness of CRC than the reverse. Therefore, there is a need for campaigns and educational programs, from health care authorities, a higher educational institution for the general public and patients.

Keywords: Awareness, Colorectal cancer, Symptom, Risk factor, patients.

1. INTRODUCTION

1.1. Background

Cancer is an important global health problem in a developed and developing country that it is the most important cause of morbidity and mortality (1). It is expected to have grown to 18.1 million new cases and 9.6 million of the population died globally (2). Cancer is proposed that an expected more than 20 million individuals will be identified, and around 13 million will die in the year 2030 (3). From this, the most commonly diagnosed cancers worldwide are colorectal, lung, and breast cancers (4, 5). It is the most factor that affects the social and economic status of the population in the developing and developed world. Cancer in sub-Saharan Africa (SSA) is on the rise caused by rapid population growth, higher life expectancy, and the adoption of unhealthy lifestyles and a lack of awareness about cancer (6).

The third commonest recognized cancer in male and the second commonest in females in the world is colorectal cancer (CRC). The majority of CRC is classified as adenocarcinoma, which mostly begins as a benign tumor, and changed to cancerous (unregulated development of cell), and that may attack normal tissue, which spreads into the distant organ. An elderly person and a person with a family history of the CRC may have a greater incidence of the CRC (7-9).

Modifiable factors are the most important known factor; it may increase the risk of having CRC with stimulating a multiplication of cancerous cells. Modifiable factors needed to be prevented by increasing awareness of the population about their life experience (9-12).

A person with a family member who was identified with CRC, have a larger risk of evolving the disease by three times, paralleled to a person with a non-family history of CRC. It becomes the highest frequent risk factor of CRC in Kuwait (13, 14). The study conducted in Eritrea suggested that the prevalence of CRC is relatively increasing in males compare that to females. However, the awareness about CRC among the population is minimal (15). While the understanding of the awareness about CRC and its associated factors among the population is an important first phase to ensure their health, the practice of a good healthy lifestyle, and early treatment. This is vital to ease disease burden and early control of the disease (7, 16). Therefore people eat high fiber diet including fruit and vegetable within diet reduce 20% of CRC especially left-sided colorectal cancer. Unless otherwise, people take appropriate management include surgical management, radiotherapy, and chemotherapy (17).

The report has shown that, start within the age of 50 and above, peoples who had a high possibility of continuing to develop colorectal cancer. So, creating awareness has been a basic solution to start CRC screening. Increasing awareness of CRC and its associated factors supports to stop colorectal cancers early. It is well-known to help drop mortality and expand the survival of a person with CRC (14, 18).

Studies from different countries revealed that the relationship between related factors, CRC become higher in the case of alcohol drinking, type two diabetes mellitus (DM-2), past testicular cancer treatment, and some drug. Overall, CRC and diabetes take part in common possible causes, for instance, obesity and lack of physical activity (13, 19). DM-2 is the most probable risk factor that increases the incidence of CRC. The risk of CRC in patients with DM-2 is increased by two times. However, most people have not been known about the interrelationship between DM-2 and colorectal cancer (20). One study reported that the awareness of DM-2 as a significant possible cause of CRC among study participants was 31% (13). Therefore, the requirement of awareness about the relation between the two diseases among the general population is very crucial.

The incidence of colorectal cancer in Ethiopia among adult residents is (5.7%) next to the breast (30.2%) and cervical (13.4%) cancer. The organization of health in Ethiopia mostly focused on the switch of communicable disease. So that the chronic illness like CRC is increased (3). In addition to this, the study conducted in Tikur Anbesa Specialized hospital reported that the prevalence of CRC reaches (12.2%) in male and (4.4%) in female (11). But, currently, the incidence of CRC has risen very speedily. It is estimated that CRC has the first highest cancer among men (19%), and fourth-highest cancer among women cancer (5%) (22). This is because, the awareness about colorectal cancer and its associated factor in Ethiopia has not been experienced and there is a limitation of structured colorectal cancer education or screening program in Ethiopia, the ongoing problem remains, considerably, the lack of such programs associated to a general lack of awareness towards colorectal cancer and its associated factor link to increase disease burden. Due to that, it needs awareness campaigns to deliver wide-ranging information about CRC to people in all areas and disappear any negative views and awareness. Therefore, there is highly significant to assess the awareness of CRC among patients. This study has been concluded to assess the awareness of CRC and its associated factors among patients attending JUMC.

1.2. Statement of Problem

Colorectal Cancer is an adenocarcinoma, which mostly begins as a benign tumor, and transformed into cancerous (unregulated development of cell), and that may attack normal tissue, which spreads into the distant organ. The occurrence of the disease rises with age and is greater in people with a family history of the case (7, 8). Colorectal cancer is the third commonest confirmed cancer that has grown to 1.8 million cases (10.2%) in the globe. It is reported with the biggest figure of deaths (881 000, 9.2%) next to lung cancer (18.4%) in the sphere, due to low awareness of CRC and its associated factors (2, 23).

Currently, the occurrence of CRC is declined in the country in which economically higher, the reason for why decrement is mainly related to the uprising of awareness of CRC and its associated factors among the population. On the other hand, CRC frequency is highly growing in countries that have less economy. The reason that people become familiar with the life of westernization like lack physical exercise, an unhealthy diet, being overweight, and increase the number of smokers (24-26).

In Malaysia, CRC was the second commonest cancer next to breast carcinoma. However, 18% of CRC disease could be reduced by raising community awareness to exercise proper preventive measures like practicing regular physical activity, decrease body weight, and stop alcohol intake (27). In Sub-Saharan Africa, colorectal cancer is the commonest cancer that investigates for 5.6% in males and 3.7% in females. The commonness of CRC becomes higher in SSA to the presence of poverty, lack of awareness about disease risk factors and warning symptoms, insufficient investigative, and treatment services in contrast with other world regions (28). Similarly, the lack of awareness toward socio-economic improvement, dietary change, lifestyle, and environmental factors in the LMICs might be a factor in the escalating prevalence of CRC (29). Contrary, increasing the awareness of the general population about risk factors, warning signs, and preventive measures of CRC may lead to a decrease in the prevalence of the disease and a rising number of populations for willingness to involve in cancer screening (30). The reason that enhanced willingness in up taking colorectal cancer screening is the result of the enhancement of awareness in which CRC screening would have a positive effect on public health (31). Therefore, improving awareness regarding risk factors, identification of the early symptoms, associated factor, and changing the negative image of CRC advancing participation in screening, early diagnosis, and early treatment, leads to important in declining the incidence of colorectal cancer burden (32, 33).

CRC is the third most common cancer among the Ethiopian adult population (3). The study indicates the prevalence of CRC in Ethiopia reaches (12.2%) in male and (4.4%) in female (11). The organization of healthy in Ethiopia mostly focused on the switch of communicable disease and there is insufficient screening center, treatment facilities, and, unwell organized referral. Therefore, non-communicable disease (NCD) like cancer, colorectal cancer is increasing rapidly (3). So that today

CRC in Ethiopia, become the first highest cancer among men (19%), and fourth-highest cancer among women (5%) (22). In case of high incidence and death of young workers and caretakers of elderly people, CRC could have its effects on the economy of the country, education, and socioeconomic status of the community (26). Consequently, increased awareness of colorectal cancer, the factor that associated with CRC and solution for early confirm the disease among the population, can have an unlimited influence on the prevention of disease and termination of disease prevalence. However, there is a gap of awareness of CRC toward its associated factor, identifying their symptoms, risk factors, and screening for CRC that may lead to late diagnosis, poor prognosis, and raise death rate among the general population in Ethiopia. According to Jimma adult cancer patient HMIS registration book indicates, within the five-month, the prevalence of CRC reaches to account 5.2% of all cases. This shows a high prevalence of CRC around here. Therefore, this indicates the need for a study to describe awareness of the population about CRC prevention regarding risk factors, and warning symptoms.

Overall, increasing the awareness of people about lifestyle modification, identify risky individuals, associated factor, and continuous screening; reduce colorectal cancer morbidity and mortality. In Africa, the data for awareness of CRC and associated factors is limited. The awareness of CRC and associated factors have been limited among the population in Ethiopia. Therefore this study aims to assess the awareness of colorectal cancer and associated factors among adult patients attending JUMC.

2. LITERATURE REVIEW

2.1 Cancer

Cancer is maybe a cluster of numerous diseases described by the unusual and unplanned progression of cells, uprising from cells of a particular tissue, and travels to other parts of the body. If the movements of the cancerous cell become uncontrolled, it may lead to death. Most of the time cancer is termed for the portion of the organ where it begins even another organ of the body parts later (17, 34). The cause of various cancers mostly not recognized, it may happen in a period of childhood, however, most of the cancer bases include avoidable factors, like smoking and obesity, and non-avoidable factors, like genetics (14). The commonest solid cancer in Ethiopia is colorectal cancer, breast cancer, cervical cancer, prostate cancer, ovarian cancer, head and neck cancer, esophageal cancer, sarcoma (3, 35).

2.2 Colorectal Cancer

Colorectal cancer may be a malignancy in the greater intestine which manifests similar signs and symptoms of colon and rectal cancer. On the other hand, it is termed as carcinoma of colon or rectal in the case of a site where tumors arising. The person with intestinal malignancy, signs, and symptoms of malignancy is relay on-site, extent as well as the existence or lack of spread of other organs (14, 29, 36, 37).

More than ninety percent of CRC is an adenocarcinoma that arises from the epithelial cell of part of the large intestine. The majority of the disease was caused by intermittently without a history in family members (25, 26). The prevalence is higher in the age above 45 years of individual in several countries (38).

2.3 Causes of Colorectal Cancer

The causes of CRC may be related to lifestyle factors but some were the outcome of genetic and age. From all colorectal cancer cases, nearly 5% happen as a result of genetic syndromes such as non-polyposis colorectal cancer (HNPCC or Lynch syndrome type I) and Familial adenomatous polyposis (FAP) (19, 25).

2.4. Awareness of Colorectal Cancer

Awareness is an essential variable that controlling the incidence of colorectal cancer among the general population. The study in the Kingdom of Bahrain showed that, among study respondents, individuals with learning higher education who have an awareness score of (63%) which is a greater score relative to other groups. The general score of awareness among respondents in Bahrain reaches 56%, but it was recorded as a low score (7). Similarly, one study demonstrated that the study participants who had high awareness about colorectal cancer contributed to 96%, therefore, this was increased the screening rate of the population (39). The study was done in Malaysia shown that out of 308 participants 91.9% and 53.6 of them had awareness about symptoms and risk factors of CRC

respectively (40). The study done in Jordan revealed that the awareness of colorectal cancer symptoms and risk factors among participants were (32.8%) and (16.5%) respectively. The authors conclude that the result obtained in the study about awareness of CRC was low. In this study females and participants who learn health linked education had high awareness compared to that of others (41).

A similar study was done in Lebanon, the most predictors that affect awareness of CRC were age 50 years and above ($p = 0.002$) and family or close friends having CRC ($p = 0.005$). Also, a source of information such as mass media (TV) was not significantly associated with awareness of CRC at ($p = 0.079$). The above results showed that participants who were age 50 and above and the family history of CRC had high awareness than their counterparts (8). The research conducted in Kuwait with 675 participants revealed that respondents who get information about CRC were 75% whereas 75.1% were informed about colorectal cancer in the past (13).

A descriptive cross-sectional study was conducted in Madinah, Saudi Arabia, to assess awareness of CRC and its risk factors among the Madinah population. The results from this study showed that the awareness of CRC in Madinah was established inadequate. The participants who had higher education levels and income got higher awareness of CRC regarding risk factors. The income and level of education had a strong influence on the awareness of CRC. Therefore, income and level of education increase the incidence of CRC, and its risk factors become decrease, the reverse was occurred in connected to age. The finding from this study showed that (44.4%) of the respondents had poor awareness. The commonest factors that were significantly associated with awareness of CRC that increase the incidence of the disease were age 50 and above ($p = 0.021$) and intermediate educational level ($p = 0.021$). The results above rightly suggest that having a high level of education, income, and age 50 years and above were significant predictors of awareness of CRC (53).

A descriptive cross-sectional study was conducted in Madinah- KSA, which revealed that (41.7%) of participants think that persons over the age of 50years and above were more likely had CRC than the participants' age lower than 50 years and (27.8%) of participants think that men were more likely to grow colorectal cancer compared to that of women. Similarly, participants who heard about the early detection of colorectal cancer reach (38%) (57). The research conducted on the level of knowledge and awareness of CRC and associated factors among the population in the African countries and Ethiopia, in particular, was limited.

2.4.1 Warning Sign and Symptom of Colorectal Cancer

In the course of early time, CRC is not manifesting any signs and symptoms. For this reason, most of the patients come up with the progressive disease. Therefore increasing awareness about screening is important to identify colorectal cancer timely (14, 34). The patients come with complain of bloody stool, chronic diarrhea, unexplained weight loss, poor appetite, anemia, and a lower abdominal lump on the right side. These cardinal symptoms are classic indicators of right-sided colorectal cancer while

constipation, the flow of blood in the rectum, and intestinal obstruction with a lower abdominal lump on the left side is diagnosis as left-sided CRC (17, 34, 42, 43).

The research conducted in Kuwait revealed that among 675 participants, only 33 % were aware of possible symptoms of CRC. In this study, majority of respondents had awareness about sign and symptoms of CRC such as chronic pain in the abdomen (57%), change in bowel habit (56%), fecal blood (55%), however, anemia and non-full dump of waste (33%) and (42%) respectively were the least presentations aware by participants (13). However, the study conducted in Saudi Arabiya suggested that (55.3%) of participants had aware of a change in the bowel habit followed by Chronic abdominal pain (47.4%) (12).

The cross-sectional study conducted in the Kingdom of Bahrain reported that lower abdominal pain was the commonest manifestation of CRC that is known by the participants (44%) next to changes in bowel habits (46%). In addition to this, rectal bleeding (22%) and loss of weight (21%) were reported as the least known sign of CRC (7). A similar study done in the Gaza strip showed that the commonest warning symptom that was aware by respondents was a lump in the lower abdomen (77.2%), whereas the minimal symptom aware by participants changed in bowel habit (23.2%) (44).

2.4.2 Risk Factors of Colorectal Cancer

According to the American Cancer Society, a risk factor is something that increases possibilities of exposure by disease such as cancer (19). Several cancers have diverse risk factors (45). Therefore, many different causes increase the chances of growing colorectal cancer. An individual who is lacking every of these risk factors hardly progresses colorectal cancer (46). Therefore, a higher rate of CRC reveals the level to which associated factors are becoming widespread (45). The risk factors of colorectal cancer are divided into two such as, modifiable and non-modifiable (25, 47).

2.4.2.1. Modifiable Risk Factor of Colorectal Cancer

This is a recognized factor that could be avoided to support minimize the risk of CRC. It is described that the majority of all cancers were associated with unhealthy personal lifestyle factors (19). Avoidable factors such as smoking, alcohol drinking, being obese, eating high red meat or processed meat, and lack of physical exercise may raise CRC incidence (14). The majority of study works have been concentrated on personal lifestyle; adaptable factors can be highly motivating as they are likely to be modified (10). For instance, the risk of CRC is reduced by 40% with the practice of regular physical activity (48).

Modifiable factors that associated with CRC were evaluated by Kingdom of Saudi Arabia (23) which is shown that (61.9%) of participants had awareness of physical inactivity that leads to CRC and, 67.9% of participants aware that, eating red meat could be exposed to colorectal cancer (49). A similar study conducted in Kuwait indicates that the participants who had awareness of CRC regarding modifiable risk factors account for almost (70%) of all cigarette smoking, drinking alcohol, and

previous colon diseases. The others like overweight (45%), low fiber intake (37%), poor fruits and vegetable intake (49%), and lack of physical activity (50%) (13). In the case of the Saudi Arabian study, (66%) of participants had high awareness about lack of physical exercise is a contributing factor of CRC (16).

2.4.2.2. Non-Modifiable Risk Factor of Colorectal Cancer

These factors cannot be avoided or modified by the individual. These non-avoidable factors are age, sex, genetics (personal or case history of CRC), chronic colon diseases like colitis, inflammatory bowel disease, and polyps (16, 36, 47, 50, 51).

A descriptive cross-sectional study was conducted in Kuwait general populations showed that family history was the commonest non-modifiable risk factor of CRC that was aware by the participants who account (73.5%) with $P < 0.05$; however, DM-2 was the least factors of CRC selected by respondents who were aware of (31%) (13).

A similar study admitted in the Kingdom of Bahrain revealed that the commonest non-avoidable risk factor that was aware by participants were family history (38%) (7). While the study conducted in Saudi Arabia, the commonest non-modifiable risk factor that was known by respondents were prior colon disease(72%), followed by aging (59%) and history of CRC in the family (52%) (16).

As the study conducted at three hospitals in Gaza revealed that non-modifiable risk factors of CRC were the greatest commonly distinguishable factors by respondents. Most of the respondents said attaining awareness of risk factors of CRC was important to prevent illness despite, a small portion of the respondents had a good awareness of bowel disease (47.3%), age (29.8%) and diabetes (19.2%) which are possible risk of CRC (52).

2.5. Associated Factors for awareness of colorectal cancer

Among the most important factors associated with CRC awareness, income, age group, gender, marital status, educational level, family history of CRC, heard about CRC, and source of information is common (13, 16, 17). From there, most of them were not significantly related to awareness of colorectal cancer like respondent's age, sex, respondent's monthly income, and educational level (40). The study reported that individuals above 50 years of age, and educated respondents and high-income respondents had high awareness than the other respondents which were significantly associated with awareness of CRC (7, 53). Similarly, respondents with age above fifty, married respondents, and university-educated respondents had high awareness concerning CRC compared to that of others (54). Women respondents also had significantly higher awareness than males [(AOR = 8.3; 95%CI: (3.0, 7.8); $P = 0.001$)] (52).

The cross-sectional study conducted in the Kingdom of Bahrain suggested that [n =63, (12.5%)] of participants had a family history of CRC. In addition to these respondents who have a family history of

colorectal cancer and female gender had high awareness, also it is significantly associated with awareness of CRC at [P-value \leq 0.05, $p = 0.000$] and [$p=0.001$] respectively (7). It is important to distinguish cancer in an initial phase (18). A similar study conducted in Saudi Arabia publicized that female participants had significantly better awareness concerning CRC risk factors and symptoms [P \leq 0.05, P=0.014] (16).

Some studies reported that CRC rates were higher in people who earn lower incomes (55). This difference can be due to low awareness of CRC risk factors in those areas (such as immovability, lack of healthy diet, higher smoking habit, far from the source of information about CRC and, overweight) as well as low screening rates in the areas (55, 56).

The research conducted in Kuwait with 675 participants revealed that respondents who get information about CRC were 75% whereas 75.1% were informed about colorectal cancer in the past (13). A similar study conducted in Saudi Arabia revealed that participants who gained information about CRC from hospital and mass media (40%), from regular class activity(curriculum) (36%), and social media (20.4%). Also, information about CRC was significantly associated with awareness of colorectal cancer (16). Similarly, a survey in Madinah, KSA, showed that the most important material used for creating awareness about CRC was social media (30%) (57).

There is a limitation of study which assessed the awareness of CRC and its associated factors among adult patients in Ethiopia. According to the literature reviewed, the number of new cases of CRC has increased very rapidly that reaches 19% for men and, 5% for women in Ethiopia. There are potential gaps in awareness of CRC and its associated factors among adult patients in JUMC. Therefore, more research needs to be done, targeting not only the patients of JUMC, which this study considered but also the other population groups with awareness gaps to join the prevention of CRC in Ethiopia. This study would be determining the awareness of CRC and its associated factors among adult patients attending JUMC.

CONCEPTUAL FRAMEWORK

This conceptual framework is developed by the principal investigator after reviewing different kinds of literature. It has two main factors: - such as information related factors and socio-demographic characteristics which may influence the awareness of colorectal cancer (8, 13, 19, 20, 27, 58-60).

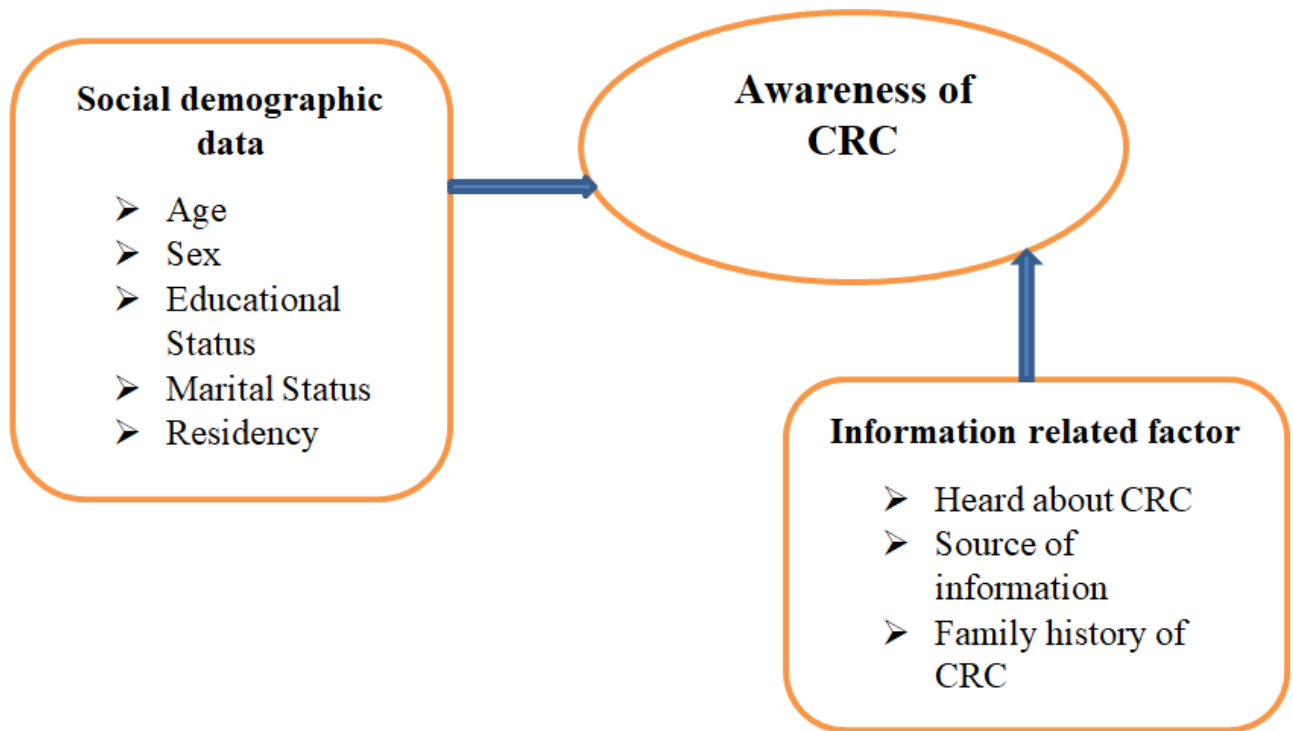


Figure 1: Conceptual framework for the assessment of awareness of colorectal cancer and associated factors among patients attending Jimma University Medical Center, South-West Ethiopia, 2020.

JUSTIFICATION OF STUDY

This study aims to assess the awareness of colorectal cancer and its associated factors. Many kinds of literature directed that awareness of colorectal cancer is the commonest important encounter for the population within the community. There is limited study on awareness of colorectal cancer and its associated factors among people in Ethiopia. Therefore this study will contribute to filling the gaps mainly for the awareness of colorectal cancer and its associated factors among patients attending the Hospital. This study will support the responsible body to design the way to provide information to the community regarding awareness of colorectal cancer and its associated factors. Therefore, the purpose of this study is to assess the awareness of colorectal cancer and its associated factor among patients attending Jimma University Medical Center, Jimma, South-West Ethiopia, 2020.

SIGNIFICANCE OF STUDY

The study aims to assess the awareness of CRC and its associated factors, to gain awareness of CRC and associated factors like early signs and symptoms and its risk factors; ultimately it is essential to make smaller disease frequency and early detection of the disease. In addition to this, the understanding of the awareness and associated factors of CRC among the population is an indispensable primary phase to ensure their health wellbeing and experience of a healthy lifestyle. Therefore, it is vital to motivate the role of health advancement and enhance the level of awareness of CRC and associated factors in the Ethiopian population. The finding of this research will be used as a baseline tool for policymakers to design policies, plans, and intervention programs for creating awareness of colorectal cancer including associated factors in the public population. Ultimately, this study will help the patients in reducing increased health care costs, reduce hospital stay in the case of CRC, and improves the quality of life. This research is the first study within this country so it may be used as a source of data for researchers who are interested to conduct further study and those findings may be useful for nursing students, nurses and other health professionals who are likely interested to assess the awareness of CRC and its associated factors.

3. OBJECTIVES OF THE STUDY

3.1. General Objective

- ❖ To assess the awareness of colorectal cancer and its associated factors among adult patients attending Jimma University Medical Center, Jimma, South-West Ethiopia, 2020.

3.2. Specific Objectives

- To assess the awareness of colorectal cancer among adult patients attending JUMC, 2020.
- To identify factors associated with awareness of colorectal cancer among adult patients attending JUMC, 2020.

3.3. Research Questions

- What is the level of awareness of CRC amongst adult patients attending JUMC?
- What factor is associated with the level of awareness about CRC?

4. MATERIALS AND METHODS

4.1. Study Area and Period

The study was conducted in JUMC from March 8 to April 30, 2020, Jimma, Ethiopia, which is found 354 kilometers from the capital Addis Ababa within the southwest of Ethiopia. JUMC is one of the oldest public hospitals in Ethiopia. It had been instituted in 1930 E.C by Italian invaders for the facility of their soldiers. Previously it named Jimma University specialized hospital, but its name currently changed to JUMC. It's unique in that it acts as the only medical center in Ethiopia. It currently has 675 beds, with an annual average of serving a population of 15 million people. JUMC also becomes a cancer center and starting an adult and pediatric cancer treatment as outpatient and inpatient. It's providing services for about 15,000 inpatients, 250,000 outpatient attendants from this 174,540 patients attending in the cold outpatient department, 11,000 emergency cases, and 4500 deliveries during a year coming to the hospital from the catchment population of about 1.5 million people (61). Currently, JUMC provides different services to the people living in Jimma town and around there. Additionally, this Health institution is accessible to the bulk of the community.

4.2. Study Design

The institutional-based quantitative cross-sectional study design was conducted.

4.3. Population

4.3.1 Source Population: All adult patients who had been attending JUMC.

4.3.2 Study Population: All adult patients who had been attending the selected outpatient clinic of JUMC.

4.3.3 Study Unit: All adult patients who had been attending selected outpatient clinics of JUMC during data collection that fulfill inclusion criteria.

4.4. Eligibility Criteria

4.4.1 Inclusion Criteria:

Volunteer adult patients who had been attending the cold outpatient clinic of JUMC during the data collection period were within the study.

4.4.2 Exclusion Criteria:

- All patients who had a history of CRC,
- All patients who were mentally ill, chronically ill, critically sick,
- All patients who were visual and hearing disorder
- All patients who were unable to speak with others during the info collection period.

4.5. Sample Size Determination

The sample size was decided by employing a single population proportion formula. The subsequent assumptions were made, marginal error (d) that was tolerated in either side of the true proportion to be

5%, and using 95% confidence level, $\alpha=0.05$ and adding 10% to catch-up on non-responses and therefore the proportion of awareness of colorectal cancer was not determined within the country even in Africa, so 50% prevalence for determining sample size was taken.

$$n = \frac{(z \alpha/2)^2 (p (1-p))}{d^2}$$

Where

n = is minimum sample size required for the study

Z = is standard Gaussian distribution (Z=1.96) with confident interval of 95% and $\alpha=0.05$

P = is prevalence of awareness= 50% (No previous study that determine prevalence of awareness of CRC)

d = is a tolerable margin of error (d=0.05)

$$n = \frac{(z \alpha/2)^2 (p (1-p))}{d^2}$$

$$= \frac{(1.96)^2 0.5 (1-0.5)}{(0.05)^2} = 384.08 = 384$$

$$n = 384$$

By adding a ten percent non-response rate the ultimate sample size was **422**.

4.6. Sampling Procedures

A systematic random sampling technique was employed to get allocated samples from JUMC. The number of monthly attended adult patients in the cold outpatient department of JUMC was [N = 14,559] from these, 485 patients were attended daily. For all cases, [n = 422], $K = N/n = 35$ and K was between 1 and 35. First comer patients who registered in the HMIS case registry book took as a first sample and then every 35 intervals until getting the [485/35 = 14] samples with a day at the cold outpatient department. JUMC was selected by the purposive method from the other hospital found in Jimma zone hence, JUMC gives service for cancer care.

4.7. Study Variables

4.7.1. Dependent variable

- Awareness of colorectal cancer

4.7.2. Independent Variables

- ❖ **Socio-demographic variables include** Age, sex, marital status, education, residency, and income.
- ❖ **Information related factors:** Heard about CRC, source of information about CRC, and family history of CRC.

4.8. Operational Definition

Awareness: - is that the knowledge of understands of situation or information which is measured by awareness scale, which is categorized as high and low awareness (32, 57, 59, 62).

- ❖ **High awareness:** A 20 yes or no questions with a total score ranging from [0–20] points were used to evaluate the awareness of colorectal cancer among patients [n = 422] and those who scored 15[75%] and above have high awareness.
- ❖ **Low awareness:** Those who scored below 15[75%] to awareness item questionnaires with a total score ranging from [0-20] points had low awareness.
- **A cold outpatient clinic** is maybe a place where that provides service for merely adult medical and surgically ill patients as outpatients.

4.9. Data Collection Tools and Procedures

Data were collected using an interviewer-administered structured questionnaire. The CAM questionnaires were adapted from the University College London and Cancer Research in the UK in 2008 and were intended to examine the general public's awareness of CRC in the United Kingdom with some modifications after serious literature review (59). For this study, the instruments on awareness of colorectal cancer regarding risk factors and warning symptoms were interpreted to Amharic version, then local language Affan Oromo via a back to back translation approach and certified before being used in this work as defined in the section (Annex III, IV, and V). The certification result revealed that there was 96% consent between the Amharic, Affan Oromo, and English instruments. In this study, the level of awareness of colorectal cancer regarding warning signs, possible factors, and associated factors was measured by bowel cancer awareness measure instruments.

The questionnaire had been designed in two parts which include part I: as socio-demographic data including information related factors. Part II: holds the questions which can measure the level of awareness of CRC. The instrument asked to say “yes” or “no” for every request, where “yes” indicated for the exact response. A participant got an excellent mark of twenty out of twenty when the whole questions were responded exactly. An accumulative mark of respondent's on awareness of CRC ranging from (0–20) which was acquired by the accumulation of exact response to the 20-item questionnaire. A total mark of 15 or more was referred to as the respondents were attaining high awareness; whereas respondents who score less than 15 were attaining low awareness (32, 62). Interviewer administered questionnaires were administered with the help of five trained Diploma nurses as, data collectors and two BSc Nurse as, Supervisors. If the participants could be read and write, the instruments were distributed for the study population, after guarantying their willingness to take part in the study, and then it was collected by the data collectors after completion. But the

participant who could not read and write the data was collected with the face to face interview by data collectors.

4.10. Data Quality Assurance / Control

To assure the quality of data, the following measures were taken. The questionnaire was adopted from the CAM questionnaire. Its Cronbach's alpha coefficient was 0.84 and the content validity index was 0.7 (7). A Pre-test was conducted on 42 adult patients in Shenene Gibe General Hospital in Jimma Zone one week before the actual data collection and the questionnaire had been checked for its clarity, understandability, and simplicity. After the pre-test, the questionnaires were reviewed and reformatted based on the inputs and comments generated by seniors. After this, the internal consistency (Cronbach's- α) in this study was 0.90 which can be considered as adequate. Both the principal investigator and recruited supervisors had been responsible for supportive supervision on the spot and on reviewing all filled questionnaires daily. Data collectors and supervisors were enrolled in training for one day on the objective of the study, instrument, and data collection procedures by the principal investigator. The supervisors were checking the questionnaire for completeness and closely supervise data collectors and presented to the principal investigators. Moreover, the collected data was coded, cleaned, and explored by the principal investigator before analysis.

4.11. Data Entry, Analysis, and Presentation

The assembled data was checked its completeness and consistencies before data entry. Answers in each question were labeled for easiness of data entrance. The coded data were entered into Epi data version 4.6.0 and exported to SPSS version, 25 was used for data analysis. Descriptive analysis, like, percentages, frequency, and central tendency were calculated. The cross-tabulation was also calculated using dependent and independent variables. Besides, bivariate and multivariate logistic regression models were carried out to see the association between the independent and out-come variable. The AOR was used to recognize the strength of association at 95% CI. Then significant factors with p-value < 0.25 ; CI- 95 % in bivariate analysis were entered into multivariate logistic regression models to control the effect of confounding factors, and the statistical test of association was considered significant at a p-value of < 0.05 . Then the result of this study was presented in text, figures, and tables.

4.12. Ethical Consideration

A formal letter of ethical permission was gained from Institutional Review Board of Addis Ababa University (IRB-AAU), College of health sciences and permission letter was obtained from Addis Ababa University, College of Health Sciences School of Nursing and Midwifery to the administrator of the particular health facility of the study site. A letter of permission was secured from administrative bodies of the hospitals to communicate with relevant bodies in the health institutions. All of the study participants' were informed about the purpose of the study, about their right to participate, or to terminate at any time if they want and respondents were ensured about the confidentiality of information obtained. Then verbal consent of respondents was obtained by asking

whether they participate or not. After this, the data collectors started the data collection by considering the norms, values, beliefs, cultures, and confidentiality of the participants. The beneficence of the participants was maintained throughout the study.

4.14. Dissemination Study Results

The result of the study will be submitted and presented to Addis Ababa University College of Health Sciences School of Nursing and Midwifery. The result of the study will also be submitted to Jimma University Medical Center and Oslo University and relevant stakeholders. Finally, the result will be published in reputable journals and also be presented in different conferences like health-related seminars; especially on cancer care.

5. RESULTS

5.1. Socio demographic characteristics

A total of 422 with response rate (100%) patients participated in this study. Table 1 shows almost half (n = 212, [50.2%]) of respondents were male, with mean age of 47.30 ± 17.81 (Range = 20 – 83) years, and (n = 229, [54.3%]) of the participants were between the ages group of 20 - 49 years. More than half (n = 263, [62.3%]) of the respondents were married and (n = 212, [50.2%]) were followers of the Muslim religion. Most (n = 240, [56.9%]) of the participants live in the rural area. As for the educational level (n = 98, [23.2%]) of respondents attended elementary (1 - 8) school while (n = 74, [17.5%]) attended college and above. About more than half of (n = 240, [56.9%]) of respondents earn monthly income lower than 3000 Ethiopian birrs and (n = 248, [58.8%]) of participants heard about CRC. Only (n = 17, [4%]) of participants had family history of CRC and more than half (237, [56.2%]) of the participants responded that CRC is a preventable disease (Table 1). Seventy four (n = 74, [29.8%]) of the respondents had received information concerning CRC from mass media followed by social media (n = 55, [22.2%]) (Figure 2).

Table 1: Sociodemographic characteristics of respondents in Jimma University Medical Center, South West, Ethiopia, 2020 (N = 422).

Characteristics		Frequency	Percent
Age in year (Mean =47.3) (SD =17.81)	20 – 29	88	20.9
	30 – 39	85	20.1
	40 – 49	56	13.3
	50 and more	193	45.7
Sex	Male	212	50.2
	Female	210	49.8
Marital Status	Single	113	26.8
	Married	263	62.3
	Widowed	35	8.5
	Divorced	11	2.6
Religion	Muslim	212	50.2
	Orthodox	131	31
	Protestant	75	17.8
	Others	4	0.9
Residency	Urban	236	55.9
	Rural	186	44.1
Monthly Income	3000ETB and Above	182	56.9
	Below 3000ETB	240	43.1
Heard about CRC	Yes	248	58.8
	No	174	41.2
Family history of CRC	Yes	17	4.0
	No	405	96
CRC is preventable	Yes	237	56.2
	No	185	43.8

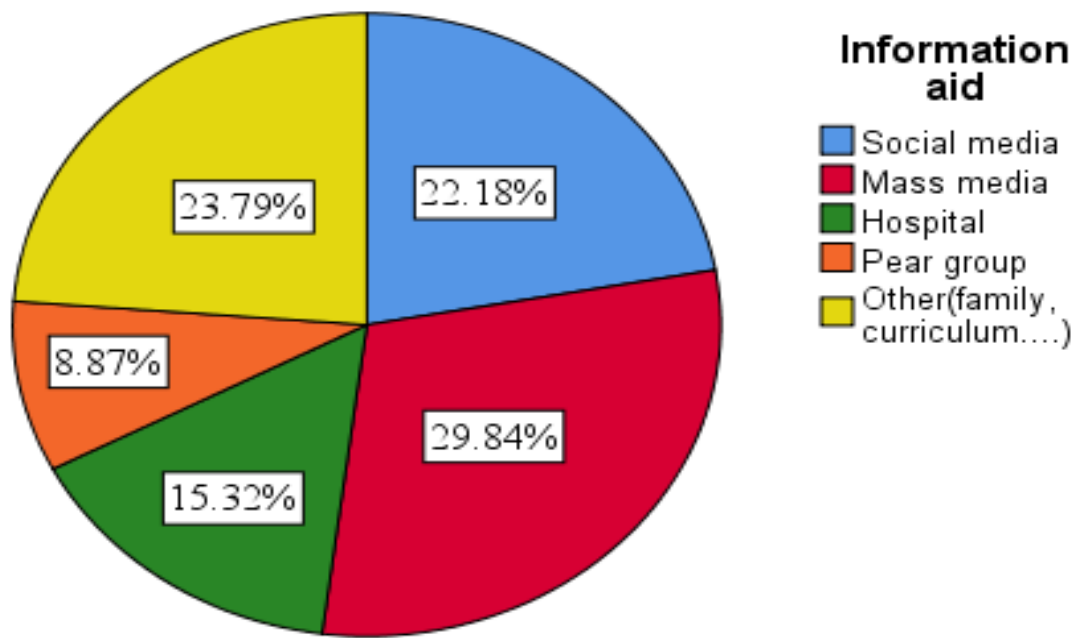


Figure 2: Total distribution of respondents' sources of information about colorectal cancer among patients in JUMC, South-west, Ethiopia, 2020.

5.2. Awareness of respondents toward Colorectal Cancer

The awareness about risk factors contained items on modifiable risk factors (lack of exercise smoking, alcohol consumption, prior colon diseases, and low fiber diet), non-modifiable risk factors (age and family history) and sign symptoms (blood in the stool, chronic abdominal pain, weight loss, rectal bleeding, and change in bowel habits) included in this study.

Among the study participants, (n=202, [47.9%]) of them aware that, family history was the most commonly significant non-modifiable risk factor that plays a role in colorectal cancer, followed by aging (n=150, [35.5%]) and type two diabetes mellitus (n=137, [32.5%]).

The findings of this study showed that majority (n=330, [78.2%]) of the participants aware that the highest modifiable agent of CRC was smoking followed by alcohol consumption (n=327, [77.5%]), lack of vegetables and fruits intake (n=248, [58.8%]), and Overweight/obesity (n=247, [58.5%]) (Table 2).

As for the participants' awareness of warning signs of CRC, bloody stool (n=208, [49.3%]), chronic abdominal pain (n=203, [48.1%]), and change in bowel habit (n=199, [47.2%]), were the most common warning symptom of colorectal cancer which aware by the participant. The results of this study showed that the least symptom of colorectal cancer that aware by participants was (n=164, [38.9%]) of anemia followed by the lump in the lower abdomen (n=143, [33.9%]) (Table2).

Table 2: Awareness regarding colorectal cancer risk factors and symptoms among respondents in Jimma University Medical Center, South-West, Ethiopia, 2020 (N = 422).

Awareness Question	Yes		No	
	Freq.	%	Freq.	%
Do you think that:-				
Aging is a risk factor for CRC	150	35.5	272	64.5
Family history influence the incidence of CRC	202	47.9	220	52.1
Type two diabetes is risk factor for CRC	137	32.5	285	67.5
Prior colon diseases is risk factor for CRC	244	57.8	178	42.2
Alcohol consumption is risk factor for CRC	327	77.5	95	22.5
Smoking cigarette is a risk factor for CRC	330	78.2	92	21.8
Eating a low fiber diet is a risk factor for CRC	242	57.3	180	42.7
Lack of physical exercise is a risk for CRC	239	56.6	183	43.4
Lack of vegetables and fruits is a risk for CRC	248	58.8	174	41.2
Overweight/obesity is risk factor for CRC	247	58.5	175	41.5
Eating high red meat is a risk factor for CRC	246	58.3	176	41.7
Rectal bleeding is a symptom of CRC	186	44.1	236	55.9
Change in bowel habits is a symptom of CRC	199	47.2	223	52.8
Weight loss is a symptom of CRC	179	42.4	243	57.6
Chronic abdominal pain is a symptom of CRC	203	48.1	219	51.9
Blood in stool is a symptom of CRC	208	49.3	214	50.7
Loss of appetite is a symptom of CRC	186	44.1	236	55.9
Sensation of non-full dump of waste	182	43.1	240	56.9
Lump lower abdomen is a symptom of CRC	143	33.9	279	66.1
Anemia is a symptom of CRC	164	38.9	258	61.1

The result in figure 2 below indicates the patient's level of awareness of colorectal cancer. It was derived from the summation of correct answers of the 20 cancer awareness measure questions for each respondent. Then the score was categorized which means the total score of respondents greater than or equal to 15 [$\geq 75\%$] had high awareness and score less than 15 [$< 75\%$] categorized as low awareness. Based on these scale category levels of awareness in this study were determined. Hence, the overall mean score of respondents in this study was 11.54 (SD, 4.732) with median score 11.00; and 0 and 20 was the minimum and the maximum correct answer observed in this study. From all study subjects, more than half (n=243, [57.6%]) of the participants felt that their awareness of CRC is low and (n=179, [42.4%]) of participants felt that is high awareness toward CRC. Finally, this low awareness among respondents might be due to a lack of information access about colorectal cancer.

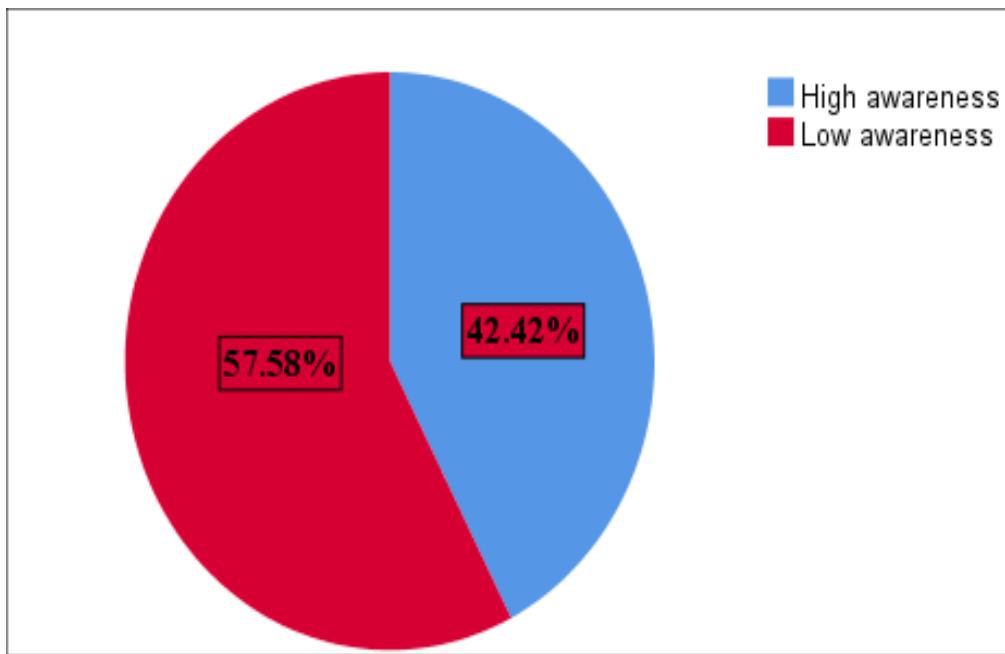


Figure 3: Distribution of respondents' level of awareness of colorectal cancer in Jimma University Medical Center, South-West, Ethiopia, 2020. (N = 422)

5.3. Factors Associated with the awareness of colorectal cancer

Bivariate logistic regression was used among different variables to determine the set of predictor variables that predicted awareness of CRC. Age, gender, marital status, religion, monthly income, residency, level of education, heard about CRC, and sources information having a family history of CRC towards CRC were entered in bivariate logistic regression analysis ($p < 0.25$).

Among the above variables that have an association with the outcome variables in bivariate logistic regression analyses at p -value < 0.25 were included in the multiple logistic regression models. After controlling for the effects of potentially confounding variables using multiple logistic regression; Gender, monthly income, residency, level of education, heard about CRC and sources of information remained significantly associated with patient's awareness towards colorectal cancer with analysis ($p < 0.05$).

The study participants who were males are almost 1.9 times more likely to have low awareness towards colorectal cancer with adjusted odds ratio [AOR = 1.86; 95%CI: (1.26, 2.75)] as compared to female. Patients who are living in urban areas were 55% less likely had low awareness towards colorectal cancer with [AOR = 0.45; 95%CI: (0.30, 0.67)] than those participants living in the rural area. Moreover, patients who earn a monthly income of below 3000ETB were 4.7 times more likely had low awareness towards CRC with [AOR = 4.72; 95%CI: (3.11, 7.15)] with compared to the patients who earn 3000ETB and above. Similarly, study participants who cannot read and write, can read and write, and learn elementary school (1-8) were 2.8 times, 2.7 times and 2.1times more likely had low awareness towards colorectal cancer with [AOR =2.83; 95%CI: (1.49, 5.37)], [2.77; 95%CI: (1.43, 5.34)] and [2.12; 95%CI: (1.15, 3.93)] respectively as compared to those patients educational level of collage &above. Additionally, patients who never heard about CRC were 4.5 times [AOR=4.48; 95% CI: (2.90, 6.93)] more likely had low awareness of CRC compared to heard about CRC. Finally, patients who get information through social media towards CRC were 2.5 times [AOR= 2.51; 95% CI :(1.18, 5.37)] more likely had a high awareness of CRC than those who get information through other sources.

Table 3: Shows predictors of awareness of colorectal cancer among patients attending in Jimma University Medical Center, South-West, Ethiopia, 2020. (N = 422)

Variable	Level Awareness		COR (95 %CI	AOR (95%CI)	P-value	
	High N (%)	Low N (%)				
Gender	Male	74(41.3)	138(56.8)	0.53(0.36,0.79) *	1.86(1.26,2.75) **	0.002
	Female	105(58.7)	105(43.2)	1	1	
Residency	Urban	97(54.2)	85(35)	2.19(1.48,3.26) *	0.45(0.30,0.67)**	0.000
	Rural	82(45.8)	158(65)	1	1	
Monthly Income	<3000ETB	64(35.8)	176(72.4)	0.21(0.14,0.32) *	4.72(3.11, 7.15) **	0.000
	≥3000ETB	115(64.2)	67(27.6)	1	1	
Education	Can't read & write	30(16.8)	58(23.9)	0.35(0.18,0.66) *	2.83(1.49,5.37)**	0.001
	Can read & write	27(15.1)	51(21)	0.36(0.18,0.69) *	2.77(1.43,5.34)**	0.002
	Element1-8	40(22.3)	58(23.9)	0.47(0.25,0.86) *	2.12(1.15,3.93)**	0.016
	High school9-12	38(21.2)	46(18.9)	0.56(0.29,1.06)	1.77(0.94,3.34)	
Heard About CRC	Collage & Above	44(24.6)	30(12.3)	1	1	
	No	39(21.8)	135(55.6)	0.22(0.11,0.34) *	4.48(2.90,6.93)**	0.000
Information Sources	Yes	140(78.2)	108(44.4)	1	1	
	Social media	24(17.1)	31(28.7)	0.39(0.18,0.84) *	2.51(1.18,5.37)**	0.017
	Mass media	46(32.9)	28(25.9)	0.84(0.41,1.77)	1.18(0.58,2.42)	
	Hospital	21(15.0)	17(15.7)	0.63(0.27,1.46)	1.57(0.68,3.64)	
	Pear group	10(7.1)	12(11.1)	0.42(0.15,1.15)	2.34(0.86,6.34)	
Others	39(27.9)	20(18.5)	1	1		

*p < 0.25, CI- 95 % (Confidence Interval), COD- crude odds ratio, AOD-adjusted odds ratio

** Remained statistically significant (p < 0.05) in adjusted odds ratio, ETB – Ethiopian birr

6. DISCUSSION

This is the first study investigating the awareness of CRC and its associated factors among the patients at Jimma University Medical Center. Increasing awareness toward CRC is a cornerstone for better prevention, early detection, and care of patients with advanced colorectal cancer and cancer-related complications. Unlike this, it increases the prevalence of advanced disease and CRC related mortality. Hence, this study assesses awareness of CRC and its associated factors among patients. The awareness of colorectal cancer and associated factors of patients on risk factors and symptoms has to be also interpreted in the current context and situations at hand.

This study result showed that more than one third (42.4%) of participants had a high awareness of colorectal cancer. This indicates the awareness of CRC among participants was inadequate. Therefore, it may contribute to unhealthy lifestyle practice, and leads to increases in the incidence of CRC. This finding is lower than the finding of studies conducted in the Kingdom of Bahrain 56% (7). This might be due to differences in socioeconomic status and organizational policies and access to the information related CRC, and its risk factors. The result of this study is also lower than the finding of studies conducted in Pakistan (63) which is 66.6%. This discrepancy might be due to differences in the study population in which the Pakistan study included only young university students and might be getting awareness through the educational curriculum. Conversely, this finding is also lower than the study done in Malaysia which is 91.9% and 53.6% of symptoms and risk factors of CRC respectively (40). This higher score difference might be explained by the fact that information access in Malaysia encompassed the educational curriculum from nursery through higher secondary education and telemedicine also giving service and application in urban areas (64, 65).

The finding of the current result about awareness of CRC regarding risk factors and symptoms become inadequate. This result is consistent with the study done in Jordan (41) which is awareness of colorectal cancer symptoms and risk factors among participants were (32.8%) and (16.5%) respectively. The current study showed that participants who are female had a high awareness about CRC which is consistent with the finding of the study conducted in Jordan (41). This discrepancy between genders might be due to females might give attention to their health and have the desired discussion however CRC is still frequent in men. This result is supported by the different studies done in the globe (7, 44, 53, 54).

Additionally, the current study result revealed that within age groups, age 50 and more years (46.4%) of participants had high awareness about CRC compare to that of other age groups. This is in line with the finding of other studies done in Bahrain (7) which is 45.2%. This might be due to as easy learning through an exercise in life and communication with community health teaching in one to five health programs uprising with age. This might probably have run to raise the awareness of colorectal cancer.

The commonest risk factors that aware by participants were smoking cigarettes 78.2% and alcohol consumption (77.5%). Smoking and alcohol play universal highly recognizing as a colorectal cancer risk factor and, amazingly, peoples were identifying this risk factor. This result is almost in line with the study done in the Gaza strip (44) which is (76.7%) of respondents were aware of smoking was the contributing factor for CRC. Conversely, this finding is higher than the study conducted in Kuwait which is almost each to (70%) (13). Also, this might be due to differences in governmental health policy and accessibility of public health education about the effects and consequences of smoking and alcohol consumption.

The study result shows that (58.3%) of participants were aware of eating high red /processed meat that is a risk for CRC. Conversely, this finding was lower from the study done in the Kingdom of Saudi Arabia (49) which is (67.9%). This might be due to eating raw meat is considered as a cultural food. Besides this, it might be due to socio-economic status, and access to information about the relationship between CRC and its risk factors.

This study reported that awareness of participant's that lack of physical exercise is risk factors for CRC were (56.6%). This result shows higher than the study conducted in Kuwait (13) which is (50%). This might be due to awareness of physical activity increase due to governmental action that starting mass sport that reduces chronic illness. Conversely, the study result is lower than the study done in the Kingdom of Saudi Arabia (16) which is (66%). This might be due to governmental action on practicing physical activity was limited to some urban area of the country. In addition to this, this discrepancy might be due to individual behaviors like using own automobile, being busy, standards of lifestyle, and lack of time.

The current study result indicates that the least risk factors of CRC that was aware by respondents were DM-2 (32.5%). However, DM-2 is strong, significantly associated with awareness of CRC ($P = 0.000$, $P < 0.05$). This result was almost consistent with the findings of studies reported in Kuwait (13) which is (31%); the result shows low awareness of respondents

about DM-2 as the risk of CRC. This would underline the need for public awareness about diabetes from the time when it is a significant risk factor of CRC. This result is supported by the study done in Roman (20). This is also an increasing late diagnosis and tendency to poor outcome after treatment (19).

This study showed that almost half (49.3%) of participants were aware of blood in stool, and change in bowel habits (47.2%). This finding is higher than the study conducted in Madinah, Saudi Arabia (53) where blood in the stool (45.9%) and change in bowel habits (34.8%). This difference might be due to knowing anatomical position that symptom experienced and peoples might be considering chronic hemorrhoid leads to CRC as the same symptom. Conversely, this finding was lower than the result reported by Kuwait (13) which is blood in the stool (55%) and change in bowel habits (56%). The possible justification might be due to the level of education difference among study participants that might be contributed to this result. In which 73% of participants join higher education in Kuwaiti study.

Gender, residency, level of education, monthly income, heard about CRC, and sources of information, were identified as factors that significantly associated with awareness of colorectal cancer among patients in this study. The study participants who were males are almost 1.9 times more likely to have a low awareness of CRC with adjusted odds ratio [AOR = 1.86; 95%CI: (1.26, 2.75)] as compared to females. The result of the current study consistent with the finding of the study conducted in the Gaza strip (44). This discrepancy between genders might be due to females might have more exposure to cancer-related health education or information connected to their reproductive health service encounter compared to their male counterparts.

Those patients who are living in urban areas were 55% less likely to have low awareness of colorectal cancer than those participants living in rural areas. This study finding is consistent with the study done in Malaysia (66). The probable reason for this might be due to patients living in an urban area who might have frequently got information through mass media (Television, Radio), social media, and they developed better awareness in using these types of information sources. Patients who cannot read and write, can read and write, and learn elementary school was almost three times, three times and two times more likely had low awareness towards colorectal cancer respectively as compared to those patients with higher educational level. This result is consistent with the study done in Bahrain (7). The possible justification for this might be patients with joined college and university might get information through curriculum and work

experience about colorectal cancer, this might increase awareness of colorectal cancer toward risk factors and symptoms.

Those patients who earn monthly income below 3000ETB were four times more likely to have low awareness of colorectal cancer compared to those patients who earn 3000ETB and above. This result is supported by the study done in Malaysia (40). This might be related to those patients who earn below 3000ETB monthly income and were not initiated gathering extra information rather than physiologic need. Patients who never heard about CRC were almost five times more likely to have low awareness of CRC compared to hear about CRC. This finding is consistent with the study done in Madinah, Saudi Arabia (53). The possible justification for this might be participants with better access to health-related information like CRC had better awareness about the disease, more familiar with the disease, risk factors, and their symptoms. Moreover, obtaining information through social media was two times more likely to have a high awareness of colorectal cancer than those who get information through other sources. Sources of information via social media is statistically significant at ($P = 0.017$, $P < 0.05$). This result is consistent with the study conducted in Madinah, KSA (57) which is the most source of information that the participants used for increasing awareness about CRC followed by relatives (13%) curriculum (11%) and television (6%). This result is also supported by a study done in Saudi Arabia (16). The possible justification might be information that was wanted by participants was available at any time and anywhere if the internet was available. It might be also information through social media was not need a fixed time for obtaining information about CRC. In general, the information about CRC was significantly associated with awareness of colorectal cancer.

7. STRENGTH AND LIMITATION OF STUDY

7.1. Strength of Study

The study tries to investigate information about the awareness of colorectal cancer of adult patients regarding risk factors, warning signs and symptoms, and some of the associated factors; this in return can offer clues and may forward an important message for further researchers.

At the time of designing the research proposal and before data collection well-defined inclusion and exclusion criteria were set, data collectors were trained, questionnaires were tested and necessary corrections were made. The probability sampling method was used to give equal chances for all study populations. In addition to that, the field activities of the data collectors were closely observed, high response rate the data was entered, and cleaned thoroughly by the principal investigator. Moreover, the result from this survey indicates a basic ground for educators and policymakers to propose their efforts definitely towards the creation of preventive measures, early treatment, and detection approaches.

7.2. Limitation of the Study

This study was limited to only one medical center which is found in the Jimma zone due to constraints of time and funds. More hospitals were needed for proper generalization with bigger sample size. The study did not include the general population within the country. Due to this reason comparison between regions with the region was not performed. Limitation of similar studies conducted in Ethiopia makes the comparison and discussion challenging. Finally, the other limitation of this study was the cross-sectional nature of the study design does not confirm the definitive cause and effect relationship between the variables and it was conducted within a short period.

8. CONCLUSION AND RECOMMENDATION

8.1. Conclusion

The awareness of participants toward colorectal cancer regarding risk factors, warning signs, and associated factors was low in JUMC. Similarly, the awareness of signs and symptoms of CRC among participants very low compared to that of risk factors. Smoking cigarette and alcohol consumption were the most common risk factors aware by participants followed by aging and type two diabetes mellitus which were the least common risk factors. However, the most common symptom of CRC aware by participants was chronic pain in the abdomen and stool with blood followed by the least aware of a lump in the lower abdomen and anemia. Participants with high levels of education, high income, age more than 50years, and females had better awareness toward colorectal cancer however, the overall situation is unhappy. Gender, residency, level of education, monthly income, heard about CRC, and sources of information, were significantly associated with awareness of colorectal cancer. Maximizing awareness about CRC and its associated factors play an important role in preventing and reducing the incidence of CRC.

8.2. Recommendation

These study results are a great significance from the time when they offer appropriate insight to maximize the impact of future efforts to increase CRC awareness in Ethiopia. Based on the result of this study more than half of the study participants had low awareness of colorectal cancer and its associated factors. Therefore, the following recommendations are forwarded by the investigator:

The Ministry of Health in collaboration with the ministry of education incorporates awareness of colorectal cancer as part of the health sciences study curriculum. With the involvement of hospital managers to provide training for health care providers and other stakeholders on awareness of CRC regarding risk factors, warning symptoms, and associated factors addressing health education for the nearby community. Similarly, in collaboration with governmental and non-governmental organization initiating structured awareness campaigns and devoting an awareness month for this disease can maximize awareness about CRC. In addition to this, promoting these activities on mass media and social media will help address information to a wider range of audience with different age groups and backgrounds. Besides this, in collaboration with the leader of the association of patients with diabetes mellitus for providing

awareness of patients about common risk factors of CRC and diabetes mellitus. Finally, MOH collaboration with regional health administrator to train health extension workers to address awareness of the population in the rural community about colorectal cancer regarding least aware of (risk factors, diabetes mellitus, family history, aging and symptoms like anemia, a lump in the lower abdomen, weight loss), and its associate factors through a mobile education program.

For Jimma University Medical Center administrator, in collaboration with Jimma University community mass media (JUC FM102.0) coordinator to give health education for the patients attending JUMC about awareness of CRC and its associated factors in regular intervals. It is particularly important to spread awareness about the CRC risk factors and warning signs that people were least aware of, like aging, family history, having diabetes mellitus and anemia, weight loss, and the lump in the lower abdomen. Because health-care services and mass media are respected materials that incorporate with expanding awareness to distribute awareness messages to all community members.

For Addis Ababa University, to be recommended that, to promote researchers to investigate awareness of CRC and further factors associated with awareness of CRC in the country.

For policymakers, to be recommended that, to direct their efforts firmly toward increment of awareness of CRC and its associated factors among the population to the establishment of preventive measures and disease early detection strategies.

For researchers, this present study concentrated only on the awareness concerning symptoms and risk factors of colorectal cancer and associated factors. However, it is vital to recommend further exploration through extra research on screening standards and preparedness to take part in CRC screening among the general public. This study was limited to one specific area such as Jimma University Medical Center, therefore, further studies are recommended to more hospitals for proper generalization with bigger sample size.

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ADDIS ABABA UNIVERSITY

COLLEGE OF HEALTH SCIENCES

SCHOOL OF NURSING AND MIDWIFERY

DEPARTMENT OF CLINICAL ONCOLOGY

MASTER OF SCIENCE RESEARCH PROJECT

ANNEX-I: INFORMATION SHEET

Hello dear? Dear respondent my name is _____ I am here to collect data for a study entitled, “awareness of colorectal cancer and associated factors among adult patients attending, Jimma University Medical Center.” The study is being conducted by Abdulmenan Hamza who is MSC Oncology nursing student at Addis Ababa University, College of health sciences, school of nursing, and midwifery. For this study, you are selected as a participant, and before getting your consent or permission of your participation, you need to know all the necessary information related to the study.

Thus, this information will be detailed as the objective of this study is to assess the awareness of colorectal cancer and associated factors among patients attending, Jimma University Medical Center in 2020. You are being asked to take part in this study and to respond sincerely. You are selected to be involved by chance.

Are you willing to participate in this study?	1. Yes,	2. No
Have you History of CRC	1. Yes,	2. No

If your answer is 1 and 2 respectively please proceed to the consent form.

Thank you

ANNEX-II: CONSENT FORM

This questionnaire is prepared to assess the awareness of colorectal cancer and associated factors among Patients attending, Jimma University Medical Center. The assessment is made for the partial fulfillment of the Master’s Degree in General Oncology Nurse Specialty. The information

you provide is confidential and is used only for this study. If you have any questions, don't hesitate to ask the data collector. Your cooperation and participation until the completion of the questionnaire is very necessary for the successful completion of the assessment. Therefore, we ask your genuine willingness. By participating in this research project, you may feel that it has some discomfort especially on wasting time. But we hope you will participate in the study by considering the benefit of the research result. There is no risk or hazard in participating in this research project. If you participate in this research project, there may not be a direct benefit to you. But the findings of this study will help us to identify the gap and take the appropriate intervention by the authorized stakeholder. Those participants may have signs and symptoms of the disease will be referred to the Oncology unit. You have the full right to refuse from participating in this research.

If you have any question to ask, please contact:

Abdulmenan Hamza

Tel: +251943890230

Email: abduonco@gmail.com

Participants signature: _____ date: _____

Thank you in advance for your cooperation.

ANNEX-III: QUESTIONNAIRE

Part I. Socio-demographic data

Instruction1: This Question is about Background information. Please circle the option that represents the response and write an appropriate answer to space.

S.No	Demographic Data	Response
401	What is your age?	_____
402	What is your gender?	1. Male 2. Female
403	What is your marital status?	1. Single 2. Married 3. Widowed 4. Divorced 5. Separated
404	What is your Religion	1. Muslim 2. Orthodox 3. Protestant 4. Other
405	What is your residency	1. Urban 2. Rural
406	What is your level of Education	1.Can not read and write 2.Can read and write 3.Elementary1 - 8 4.High school 9 -12 5.College and above
407	Monthly Income	_____
408	Have you ever heard about CRC?	1. Yes, 2. No
409	If your answer is yes, where you get this information?	1. Social media 2. Mass media 3. Hospital 4. Pear groups 5. Other(specify)
410	Do you think that CRC is a preventable disease?	1. Yes, 2. No
411	Do you have a family history of CRC?	1. Yes, 2. No

PART.2: The question to Assess Participants' Awareness of CRC.

Instruction 2: This Question is about the awareness of participants. Please circle the option that represents the response and write the appropriate answer to space.

S.No	Question	Response
601	Do you think that aging is one of the risk factors for CRC?	1. Yes, 2. No
602	Do you think that family history influences the incidence of CRC?	1. Yes, 2. No
603	Do you think that type two diabetes is the risk for CRC	1. Yes, 2. No
604	Do you think that prior colon diseases are a risk factor for CRC?	1. Yes, 2. No
605	Do you think that alcohol consumption is a risk factor for CRC?	1. Yes, 2. No
606	Do you think that smoking cigarettes is a risk factor for CRC?	1. Yes, 2. No
607	Do you think that eating a low fiber diet is one of the risk factors for CRC?	1. Yes, 2. No
608	Do you think that lack of exercise is considered as a risk for CRC?	1. Yes, 2. No
609	Do you think that lack of vegetables and fruits within the diet is one of the risk factors for CRC?	1. Yes, 2. No
610	Do you think that overweight/obesity is one of the risk factors for CRC?	1. Yes, 2. No
611	Do you think that eating high red /processed meat within the diet is one of the risk factors for CRC?	1. Yes, 2. No
612	Do you think that rectal bleeding is a symptom that related to CRC?	1. Yes, 2. No
613	Do you think that change in bowel habits is one of the	1. Yes, 2. No

	symptoms related to CRC?	
614	Do you think that sudden weight loss is symptoms that related to CRC?	1. Yes, 2. No
615	Do you think that chronic abdominal pain is one of the symptoms related to CRC?	1. Yes, 2.No
616	Do you think that blood in stool is one of the symptoms related to CRC?	1. Yes, 2. No
617	Do you think that Loss of appetite is one of the symptoms related to CRC?	1. Yes, 2. No
618	Do you think that the uncomfortable sensation of a non-full dump of waste is one of the symptoms related to CRC?	1. Yes, 2. No
619	Do you think that lump in the lower abdomen is one of the symptoms related to CRC?	1. Yes, 2. No
620	Do you think that anemia is one of the symptoms related to CRC?	1. Yes, 2. No

አዲስ አበባ ዩኒቨርሲቲ ጤና ሳይንስ ኮሌጅ
የነርቲንግ እና አዋላጅ ነርስ ትምህርት ክፍል
የኦንሎይን ዘርፍ ድሕረ-ምረቃ መርሃግብር

አኔክስ--IV: የመረጃ ቅጽ:-

ጤና ይስጥልኝ! እኔ _____ እዚህ የመጣሁት "ስለ አንጀት ካነሰር ግንዛቤ እና ተጓዳኝ ጉዳዮችን በጅምር ዩኒቨርሲቲ የህክምና ማዕከል ከሚታከሙ አዋቂ ታካሚዎች መካከል ለሚደረግ ጥናታዊ ዐራፍ መረጃ ለማሰባሰብ ነው ። ጥናቱ የሚካሄደው በአዲስ አበባ ዩኒቨርሲቲ ፣ በጤና ሳይንስ ኮሌጅ ፣ በነርቲንግ እና በአዋላጅነት ትምህርት ቤት ውስጥ በ MSC ኦንሎይን ነርስ ተማሪ በሆነው አብዱልሙህን ሀምዘ ነው ። እርሶዎ ለዚህ ጥናት ተሳታፊ ሆነው ተመርጠዋል ። እናም በዚህ ጥናት ለመሳተፍ ከመፍቀድዎ በፊት ከጥናቱ ጋር የተዛመዱ አስፈላጊ መረጃዎችን ሁሉ ማወቅ ያስፈልግዎታል ። ስለሆነም የዚህ ጥናት ዓላማ በ 2020 በጅምር ዩኒቨርሲቲ የህክምና ማዕከል ከሚታከሙ አዋቂ ታካሚዎች መካከል ስለ አንጀት ካነሰር ግንዛቤ እና ስለ ተጓዳኝ ምክንያቶች ዝርዝር መረጃ መሰብሰብ ይሆናል ። ስለዚህ በዚህ ጥናት ውስጥ በአጋጣሚ እንዲሳተፉ ስለተመርጡ እና በቅንነት ምላሽ እንዲሰጡ በአክብሮት እጠይቃለሁ ።

- 1. በዚህ ጥናት ለመሳተፍ ፈቃደኛ ነዎት? 1. አዎ ፣ 2. የለም
- 2. በአንጀት ካነሰር ታመዉ ያዉቃሉ 1. አዎ ፣ 2. የለም

መልስዎ በቅደም ተከተል 1 እና 2 ከሆነ እባክዎን ወደ ስምዎን ቅጽ ይሂዱ።

አመሰግናለሁ!!!

አኔክስ-II-የስምዎን ቅጽ

ይህ መጠይቅ በጅም ዩኒቨርሲቲ የህክምና ማዕከል ከሚገኙ ህመምተኞች መካከል በአንጀት ካነሰር ግንዛቤ እና ተጓዳኝ ጉዳዮችን ለማጥናት ተዘጋጅቷል። ጥናቱ የሚካሄደው አንኮሎጂ ነርስ በማስተር ዲግሪ በከፊል ለመፈጸም ነው። የሰጡት መረጃ ሚስጥራዊ እና ለዚህ ጥናት ዓላማ ብቻ ጥቅም ላይ ይውላል። ማናቸውም ጥያቄዎች ካሉዎት መረጃ ሰብሳቢውን ለመጠየቅ አያመንቱ። መጠይቁ እስኪጠናቀቅ ድረስ የእርስዎ ትብብር እና ተሳትፎ እርስዎ ጥናቱ በተሳካ ሁኔታ ለማጠናቀቅ በጣም አስፈላጊ ናቸው። ስለዚህ እውነተኛ ፈቃደኝነትዎን እንጠይቃለን። በዚህ የምርምር ፕሮጀክት ውስጥ በመሳተፍ በተለይ የተወሰነ ጊዜን የማባከን ስሜት ሊሰማዎት ይችላል። ነገር ግን የምርምር ውጤቱን ጥቅም በማጤን በጥናቱ እንደሚሳተፉ ተስፋ አለን። በዚህ የምርምር ፕሮጀክት ውስጥ መሳተፍ አደጋ ወይም ለአደጋ የሚያጋልጥ ነገር የለም። በዚህ የምርምር ፕሮጀክት ውስጥ የሚሳተፉ ከሆነ ቀጥተኛ ጥቅም ላይኖርዎት ይችላል። ነገር ግን የዚህ ጥናት ግኝቶች ክፍተቱን ለመለየት እና ባለድርሻው አካል ተገቢውን ጣልቃገብነት እንድንወስድ ይረዳዎታል። ከእነዚህ ተሳታፊዎች የበሽታው ምልክቶች ከታዩ ወደ አንኮሎጂ ክፍል ይላካሉ። በዚህ ምርምር ውስጥ ከመሳተፍ እምቢ የማለት ሙሉ መብት አለዎት።

ለመጠየቅ ማንኛውም ጥያቄ ካለዎት እባክዎ በሚከተለው አድራሻ ያነጋግሩን።

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የተሳታፊዎች ፈርማ- _____ ቀን: _____

ለትብብርዎ በቅድሚያ እናመሰግናለን።

አኔክስ-II- ጥያቄ ክፍል I. ስነ--ሕዝባዊ መረጃዎች

411	በአንጀት ካነሰር የታመመ ቤተሰብ አለዎት?	1. አዎ	2. የለም
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ክፍል 2:- የተሳታፊዎችን ስለአንጀት ካነሰር ግንዛቤ መገምገምያ ቅዕ

መመሪያ 2:- ይህ ጥያቄ የተሳታፊዎችን ስለአንጀት ካነሰር ያላቸውን ግንዛቤ መገምገሚያ ስለሆነ :: እባክዎን ምላሽን የሚወክልውን አማራጭ ይክበቡ ::

መ/ቁ	ጥያቄ	ምላሽ	
601	እርጅና ለአንጀት ካነሰር አጋላጭ ከሆኑ ነገሮች አንዱ ነው ብለው ያስባሉ?	1. አዎ	2. የለም
602	በቤተሰብ ውሰጆት ካነሰር የታመመ ቤተሰብ አለዎት?	1. አዎ	2. የለም
603	ዓይነት ሁለት የስኳር በሽታ ለአንጀት ካነሰር አደጋ የሚያጋልጥ ይመስልዎታል?	1. አዎ	2. የለም
604	ቀደም ሲል የአንጀት በሽታ መኖሩ ለአንጀት ካነሰር አጋላጭ ነው ብለው ያስባሉ?	1. አዎ	2. የለም
605	አልኮል መጠጣት ለአንጀት ካነሰር አጋላጭ ነው ብለው ያስባሉ?	1. አዎ	2. የለም
606	ስጋራ ማጨስ ለአንጀት ካነሰር አጋላጭ ነው ብለው ያስባሉ?	1. አዎ	2. የለም
607	አነስተኛ ፋይበር ያለው አመጋገብ ከአንጀት ካነሰር በሽታ ምክኒያቶች አንዱ ነው ብለው ያስባሉ?	1. አዎ	2. የለም
608	የአካል ብቃት እንቅስቃሴ አለመኖር ለአንጀት ካነሰር በሽታ አጋላጭ ተደርጎ የሚቆጠር ይመስልዎታል?	1. አዎ	2. የለም

609	ባአመጋገባችን ላይ አነስተኛ የጉዋሮ አትክልትእና ፍራፍሬ መኖር ለአንጀት ካነሰር በሽታ ከሚያጋልጡ ነገሮች አንዱ ነው ብለው ያስባሉ?	1. አዎ	2. የለም
610	ከመጠን በላይ መውፈር/ዉፍረት ለአንጀት ካነሰር አጋላጭ ነው ብለው ያስባሉ?	1. አዎ	2. የለም
611	ባአመጋገባችን ላይ ብዝሁን ጊዜ ቀይ ስጋ መብላት ለአንጀት ካነሰር በሽታ ከሚያጋልጡ ነገሮች አንዱ ነው ብለው ያስባሉ?	1. አዎ	2. የለም
612	የፊንጢጣ ደም መፍሰስ ከአንጀት ካነሰር በሽታ ጋር የተዛመደ ምልክት ነው ብለው ያስባሉ?	1. አዎ	2. የለም
613	የአንጀት ልምምድ ለውጥ ከአንጀት ካነሰር በሽታ ጋር ከተዛመዱ ምልክቶች አንዱ ነው ብለው ያስባሉ?	1. አዎ	2. የለም
614	የክብደት መቀነስ ከአንጀት ካነሰር በሽታ ጋር የተዛመደ ምልክት ነው ብለው ያስባሉ?	1. አዎ	2. የለም
615	ሥር የሰደደ የሆድ ህመም ከአንጀት ካነሰር በሽታ ጋር ከተዛመዱ ምልክቶች አንዱ ነው ብለው ያስባሉ?	1. አዎ	2. የለም
616	ደም የቀላቀለ ሰገራ መኖር ከአንጀት ካነሰር በሽታ ጋር ከተዛመዱ ምልክቶች አንዱ ነው ብለው ያስባሉ?	1. አዎ	2. የለም
617	የምግብ ፍላጎት መቀነስ ከአንጀት ካነሰር በሽታ ምልክቶች አንዱ ነው ብለው ያስባሉ?	1. አዎ	2. የለም
618	ሰገራ በምንጸዳዳበት ጊዜ ሰግራ ሙሉ ለሙሉ ያልወጣ የሚመስል ምቹ ያልሆነ ስሜት መሰማት ከአንጀት ካነሰር በሽታ ምልክቶች አንዱ ነው ብለው ያስባሉ?	1. አዎ	2. የለም

619	በታችኛው የሆዳችን የዉስጠኛው ክፍል ጠጠር ያለ ያበጠ ነገር መኖር ከአንጀት ካነሰር በሽታ ምልክቶች አንዱ ነው ብለው ያስባሉ?	1. አዎ	2. የለም
620	የደም ማነስ መከሰት ከአንጀት ካነሰር በሽታ ምልክቶች አንዱ ነው ብለው ያስባሉ?	1. አዎ	2. የለም

Yuunivarsiitii Addisaa Abaabaa kolleejjii saayinsii Fayyaatti

Damee barnoota Narsingiifi Deessiftuu

Muummee sagantaa Maastarsii Onkoloojjiitiin

Guca V: Uunkaa Odeeffannoo

Akkam Jirtu? Ani_____ kanaan as dhufeef, kansaarii marumaanii ilaalchisee hubannoofi dhimmoota walfakkaatoo irratti yuunivarsiitii Jimmaatti buleeyyii yaalamaa jiran walqabatee, barruu qorannoo dhiyeessuf odeeffannoo bu'uuraa sassaabufi. Qorannoon kun kan gaggeeffamuu yuunivarsiitii Addisaa Abaabaa kolleejjii saayinsii Fayyaa, damee barnoota Maastarsii (MSc) Onkoloojjiitiin kutaa barnoota Narsingiifi Deessiftuu manaa keessatti barataa Abdulmannaan Hamzaatiin.

Isin qorannoo kanaaf filatamtanii jirtu. Qorannoo kana keessatti hirmaachuufis odeeffannoolee bu'uuraa beeku isin barbaachisa. Kanaafis kaayyoon qorannoo kanaa bara 2020 giddugala yaallamtoota buleeyyi yuunivarsiitii Jimmaatti, yaallamaa jirani ilaalchisee hubannoofi dhimmoota walfakkaatoo jiranirratti odeeffannoolee bu'uuraa sassaabuuf ta'a. haaluma kanaan, qorannoo kana keessatti akka carraa waan hirmaataniif, ofeeggannoon akka deebii keessan kennitaniin kabajaan gaafadha.

1. Gaaffi kana keessatti hirmaachuuf heyyamamoodhaa? 1. Eeyyee 2. Lakki

2. Dhukkuba kansaarii mari'umaanii dhukkubsattanii beektuu? 1. Eeyyee 2. Lakki

Deebiin keessan walduraa duuban yoo eeyyeen ta'e, mee gara uunkaa waliigalteetti nuuf ce'aa

Galatoomaa!

Guca-II: Uunkaa Waliigaltee

Gaaffiin kun giddugala yaala yuunivarsiitii Jimmaatti, dhukkubsattoota dhibee kansaarii mari'amaanii irratti hubannoofi dhimmoota walfakkaatootiif kan qophaa'eedha. Qorannoon kunis kan gaggeeffammuu barnoota digirii lammaffaa (MSc) xumuruuf kan dhiyaatedha. Iccitiin odeeffannoon kennitanii kan eeggamuufi dhimma qorannoo kana qofaaf duwwaa kan oolu ta'a. gaaffii kamiyyuu yoo qabattan gaafachuuf homaatu hin shakkinaa. Gaaffii isiniif dhiyaate haga xumuramutti tumsiifi hirmaannan keessan qorannichi haala milkaa'een akka xumuramuuf baayyee barbaachisoodha. Kanaafuu, bifa haqaa ta'een akka naaf heyyamamtaniin gaafadha. Hirmaannan isin as keessatti gootan yeroo keessan akka fudhatu ni hubannaa, haat'u malee bu'aa qorannoo kanaatiif baayyee murteessaata'uu akka hubattan abdiin qaba. Qorannoo kana keessatti hirmaachuun keessan balaa yookaan waan balaaf isin saaxilu homaatu hin qabaatu. Qorannoo kana keessatti yookan hirmaatgtan ta'ee bu'aan kallattii argachuu qabaachuu dhiisu mala, haata'u malee, bu'aan qorannoo kanaa qaawwa jiru adda baasuufi qaamolee dhimmi ilaallatu tarkaanfii madaaluu akka fudhatuuni gargaara.

Bu'aa qorannoo kanaarraa ka'ee namoonni mallattoon kansaarii mari'umaanii kan irratti mul'atuu yoo ta'e gara kutaa Onkoloojjiitti ni ergamu. Qorannoo kana keessatti hirmaachuu dhiisuufis mirga guutuu qabdu.

Gaaffiin gaafachuu barbaaddan yoo jiraate teessoo armaan gadiitiin gaafachuun na dubbisa.

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Mallattoo Hirmaataa:-_____ Guyyaa: _____

Tumsa keessaniif durseen isin galateeffadha! Hora Bulaa.

	dhageessanii beektu?	2. Lakki
409	Gaaffii 408 irraati deebiin keessan eeyyeen yoo ta'e eessaa dhageessan?	1. Miidiyaa hawaasaa 2. Marsaalee adda addaa 3. Hospitaala irraa 4. Hiriya 5. Kan biro
410	Kansaarii Mar'uumaan ittisuun ni danda'ama jettanii yaadduu?	1. Eeyyeen 2. Lakki
411	Maatii dhukkuba kansaarii Mar'uumaan dhukkubsate qabduu?	1. Eeyyeen 2. Lakki

Kutaa 2:- Odeeffannoo waa' ee hirmattootaa dhukkuba kansaarii marr'umaani

Qajeelfama 2: Gaaffiin kun madaalli hubannoo hirmattootaatiif oola.

Maaloo deebii keessan bakka tokkorratti maruun deebisaa

Lakk	Gaaffii	Deebii
601	Dullomunni dhukkubaa kansaarii mar'uumaaniitiif wantoota sababa ta'an keessa tokko jettanii yaadduu?	1. Eeyyee 2. Lakki
602	Maatii dhukkuba kansaarii Mar'uumaanii dhukkubsate qabduu?	1. Eeyyee 2. Lakki
603	Gosti 2ffaana dhukkubaa suukkara dhukkubaa kansaarii mar'uumaaniitiif ni saaxilaa jettanii yaadduu?	1. Eeyyeen 2. Lakki
604	Dursa jiraachuun dhukkuba mar'uumaanii dhukkuba kansaarii mar'uumaaniitiif saaxiluu danda'a jettanii ni	1. Eeyyeen

	yaadduu?	2. Lakki
605	Alkoolii dhuguun kansaarii Mar'uumaaniitiif ni saaxila jettanii yaadduu?	1. Eeyyeen 2. Lakki
606	Sigaraa xuuxuun dhukkuba kansaarii mar'uumaaniitiif ni saaxila jettanii yaadduu?	1. Eeyyeen 2. Lakki
607	Soorata faabariin xiqqaa ta'e nyaachuun, kansaarii mar'uumaaniitiif sababa tokkoodha jettanii yaadduu?	1. Eeyyeen 2. Lakki
608	Sochii qaamaa gochuu dhabuun wantoota kansaarii mari'amaaniitiif nama saaxilan ta'aanii waan fudhatamaan isinitti fakkaataa?	1. Eeyyeen 2. Lakki
609	Haalaa soorata keessattii hanqinni kuduuraa fi muduraa dhibbee Kansaari marummaaniitiif nama saaxiluu keessa tokko jette yaada?	1. Eeyyeen 2. Lakki
610	Garmalee furdaachuun (Furdinni)dhibbee kansaarii Marummaaniitiif nama saaxilaa jettani yaadu?	1. Eeyyeen 2. Lakki
611	Haalaa Sorataa keessaatti yeroo baay'ee foon diimaa nyaachuun(sorachuun)dhibbeekansaarii maarummaanif nama saxilaa jettani yaadu?	1. Eeyyeen 2. Lakki
612	Dhangala'uun dhiigaa xeerii, kansaarii mar'uumaanii wajjin waan walitti dhufeenya qabu isinitti fakkaataa?	1. Eeyyeen 2. Lakki
613	Goolamuun mar'imaanii dhukkubaa kansaarii wajjin wantoota walitii dhufeenya qaban keessaa tokkoodha jettanii yaadduu?	1. Eeyyeen 2. Lakki
614	Hirr'achuun uulfaatiinaa mallattoo dhukkuba kansaarii	1. Eeyyeen

	mar'uumaanii wajjin walqabataniidha jettanii yaadduu?	2. Lakki
615	Dhukkubni mar'umaanii hammaatee, mallattoo dhukkuba kansaarii mar'umaanii waliin walqabatan keessaa tokko jettanii yaadduu?	1. Eeyyeen 2. Lakki
616	Bobbaan dhiigaan walmakee ba'uu, dhukkuba kansaarii mar'umaanii wajjin walqabata jettanii yaadduu?	1. Eeyyeen 2. Lakki
617	Namni tokko fedhiin nyaataa isaa yoo hir;ate mallattoo dhibbee kaansaarii marummaaniti jette yaada?	1. Eeyyeen 2. Lakki
618	Mana fincaani deemne yemmuu qulqulofnuti bolii furdaa guutama gutuuti waan hin bane yoo nuti fakkate fi haalii miijataa yoo nuti dhaga'amu baatee mallattoo dhibbee kaansarii marummaani keessaa tokko jettani yaadduu?	1. Eeyyeen 2. Lakki
619	Garaa keenya gadi kessoo kessaattii wanti akka cirachaa ykn dhitoon yoo jiraate mallattoo dhibbee kaansaarii marummaani keessaa isaa tokko jettani yaadu?	1. Eeyyeen 2. Lakki
620	Hiri;ni dhiigaa mallattoo dhibbee kaansarii maarummaanikeessa isaa tokko jettani yaadu?	1. Eeyyeen 2. Lakki

