



**ADDIS ABABA UNIVERSIT
Y, COLLEGE OF HEALTH SCIENCES SCHOOL OF MEDICINE,
DEPARTEMENT OF DENTISTRY, ORAL AND MAXILLOFACIAL
SURGERY UNIT**

**A CROSS SECTIONAL DESCRIPTIVE STUDY ON ORAL
CANCER AWARENESS AMONG PATIENTS THAT VISITED DEPARTMENT OF
DENTISTRY AND ORAL AND MAXILLOFACIAL SURGERY UNIT AT TIKUR ANBESA
SPECIALIZED HOSPITAL , ADDIS ABABA UNIVERSITY**

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A RESEARCH PAPER TO BE SUBMITTED TO DEPARTMENT OF DENTISTRY AND ORAL AND MAXILLOFACIAL SURGERY UNIT, SCHOOL OF MEDICINE, COLLEGE OF HEALTH SCIENCES, ADDIS ABABA UNIVERSITY IN PARTIAL FULFILLMENT OF THE REQUIRMENT FOR SPECIALTY CERTIFICATE IN ORAL & MAXILLOFACIAL SURGERY.

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ABSTRACT

Background: Oral cancer is a malignant tumor that develops in a part of the mouth. It may be on the surface of the tongue, the inside of the cheeks, the roof of the mouth (palate), floor of mouth, the lips or gums. It is a preventable disease. Its occurrence is mostly due to lifestyle. Knowledge of the signs and symptoms of oral cancer may well aid in early diagnosis and treatment. This is bound to increase in survival rate.

Objectives: To assess the awareness of Oral cancer among patients that visited department of Dentistry and maxillofacial surgery at Tikur Anbesa Specialized Hospital, Addis Ababa, Ethiopia.

Methods: A hospital based cross-sectional study; interviewer-administered questionnaire was conducted amongst 221 adult patients attending the Tikur Anbesa Hospital during June, 2023. A 29-item questioner which has 3 sections: demographics, knowledge of risk factors and knowledge of sign & symptoms of oral cancer were used during data collection.

Time frame: The study was conducted from June 1 up to June 30, 2023

Result: A total of 221 patients visited the department during the study period. The female to male ratio was 1.51:1 & the mean age of patients was 37.09 years with standard deviation ± 13.77 . Majority of the participants (86.4%, N=191) were urban & 57.9% (N=128) of the participants were employed. About 52.0% (N=115) of the participants had a basic education or have accomplished primary & secondary level of school. The majority of the participants 65.2% (N=144) didn't have any habit of substance use & 75.1% (N=166) of the participants did not hear of oral cancer prior to this research. A total of 45.2% (N=100) of the participants demonstrated good knowledge of signs & symptoms of oral cancer whereas a total of 44.3% (N=98) of the participants demonstrated good knowledge of risk factors of oral cancer.

Conclusion: This research demonstrated a lack of public awareness & knowledge about oral cancer. Different measures should be taken to improve public awareness of oral cancer. Dentists and health workers should do more in educating the public.

Key words: Oral cancer, Risk factors, Signs and symptoms, Knowledge

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List of abbreviations and acronyms

OC- oral cancer

AJCC- American Joint Committee on Cancer

PMD- potentially malignant disorders

OPD- out patient department

OMFS- oral and maxillofacial surgery

TNM- tumor, node, metastasis

DNA- Deoxyribonucleic acid

WHO- world health organization

CEO- chief executive officer

LMIC- low & middle income countries

HIV – Human Immunodeficiency Virus

HPV – Human Papilloma Virus

TB - tuberculosis

NCD – Non communicable disease

CHAPTER ONE

1.Introduction

1.1 Background

Oral cancer (OC) is a malignant tumor that affects parts of the oral cavity like the lip, tongue and the rest of the oral cavity [1]. According to the AJCC there are seven anatomic sub-sites included within the oral cavity: lips, buccal mucosa, lower and upper alveolar ridges, hard palate, floor of mouth, tongue (anterior two thirds), and the retromolar trigone. Subsite variation in cancer incidence, lymph node drainage, and overall prognosis exists [2].

OC is responsible for sizable morbidity and mortality rates worldwide especially in developing countries. While it is estimated that cancer incidence 14 million new cases, oral cancer alone claims about 300.000 deaths (2.1%) annually with 1.8% mortality worldwide [3, 4]. Oral cancer is identified as the eleventh most common malignancy in the world [5].

Age, gender, tobacco use (smoked and smokeless), alcohol, infection (HPV, candida), lower socio-economic status, unhealthy diet with low fruit and vegetable intake, lack of physical activity are among the known risk factors for oral cancer [6, 7].

The most commonly encountered and typical signs and symptoms of oral cancer includes, white and red patches on the lining of the oral mucosa, unhealed oral ulcers, swellings of the mouth, loosening of one or more teeth without obvious reason, jaw pain and stiffness, difficulty or pain in swallowing, speech difficulties, reduced mobility of the tongue, numbness of the tongue or teeth or lips, bleeding of unknown origin, neck swelling, fetor oris, altered dental occlusion, sore throat, painful tongue, hoarse voice and persistent neck pain [8].

The TNM staging system of oral cancer has historically provided clinicians a dependable foundation for patient prognosis and management decisions. The pathological parameters including pathologic stage, Histopathological grading as per WHO [9], presence of vascular and perineural invasion, extracapsular spread and positive surgical margins have been used as an indicator of prognosis [10].

Surgery is the main stay of treatment for oral cancer. Primary and adjuvant radiotherapy and chemotherapy also have a strong role in the management of oral cancer [11].

An individual can easily self-examine the oral cavity and detect lesion. These is also true for dentists but it is still a controversial issue as there is no evidence of the effectiveness of such assessment in reducing mortality from OC. In spite of this, it is still recommended that dentists should “remain vigilant for signs of potentially malignant disorders (PMD) and OC in their day to day practice [12, 13].

Through increased knowledge of oral cancer risk factors, signs and symptoms we can prevent the occurrence of oral cancer and this in turn is directly related to the prognosis of the cases identified. This is due to the fact that reinforcement of awareness on oral cancer can possibly lead to detection of early clinical presentation and hence early diagnosis. Moreover, oral cancer can be reduced by limiting the risk factors and early detection of signs and symptoms [14].

In order to help establish preventive community program, minimize the problem consequence and even prevent the occurrence of oral cancer, studying the awareness of early signs and symptoms and risk factors of oral cancer can really aid us. This study aimed to investigate the awareness of oral cancer regarding knowledge of signs, symptoms and risk factors and source of information.

1.2 Statement of the problem

Oral cancer is among the ten most prevalent types of cancer in the world, associated with high mortality and morbidity rates, representing a worldwide public health problem. In the elderly population, the number of cases of oral cancer has grown considerably, due, in part, to the increase in longevity of this population [15]. In the next 20 years, the global estimate is an increase of 66.2% in the number of new cases of oral cancer for the elderly population [16].

Low and middle income countries (LMIC) account for 80% of the world wide cancer burden, but receive only 5% of the global financial resources for cancer care [17]. Many countries in Africa are undergoing economic modernization resulting in major changes in diet and lifestyle, smoking, and in sexual behavior, having a potential influence on infections such as HPV & HIV [18].

The burden of infectious diseases like malaria, cholera, HIV and tuberculosis (TB) has been a focus in Africa, against a backdrop of an increasing burden of non-communicable diseases (NCDs) such as cancer [19]. According to WHO NCD fact sheet in 2011, NCD- related mortality by 2030 will exceed the combined mortality of maternal and perinatal deaths from communicable and nutritional diseases [20].

The biologic behavior of oral cancer vis-à-vis determining which would run an aggressive or indolent course, adds another layer of intricacy to diagnosis and management [21].

There is apparent under reporting of cases in many countries in Africa due to lack of cancer registries, cancer control programmes, modern health infrastructure, access to health care, finances, educational levels and existing religious and cultural beliefs. Religious beliefs, for example have been found to play an important role in attitude towards and management of cancer, and may play a role in a heavy cancer burden [22].

Political issues and governmental policies also contribute to the current situation in Africa. It has been reported that many of the poorest countries in the world allocate a substantial proportion of their health budget towards funding tertiary health facilities, as well as funding overseas health treatment trips for highly politically connected and privileged individuals, thereby denying the indigent populations access to good basic healthcare [23].

Improvement in the knowledge about signs, symptoms, and early detection of oral cancer among people could help the prevention, early detection, and improved prognosis of the disease.

This study will therefore be undertaken with the objective of assessing patient's awareness on oral cancer at TASH, OMFS unit, AAU.

1.3 Significance of the study

Community awareness about oral cancer, its risk factors, sign and symptoms is very crucial for prevention and early detection and treatment of oral cancer.

To the best of my knowledge, no study has been conducted on knowledge, attitude and perception of patients on oral cancer in Ethiopia, where there could be basis for comparison. Therefore, this study will serve as a baseline study where future researches can be based on and for weighing the level of awareness of the population on oral cancer and give an indication towards the gaps that need more work from health professionals, the ministry of health and all responsible bodies.

CHAPTER TWO

2. Literature review

A survey done on the awareness and knowledge of oral cancer among residents in Beijing, China, in 2022, the results showed that public awareness of oral cancer is low, and about half had never even heard of oral cancer. In this study, the awareness rate of oral cancer was only 52.9%.

Public awareness of risk factors associated with oral cancer is also weak. In this study, only 39.6% of respondents believed that smoking was a risk factor of oral cancer; only 37.2% identified tobacco chewing as a risk factor.

In this study, only 25.5% thought that drinking alcohol was one of the risk factors of oral cancer. 40.9% believed that betel nut chewing was one of the risk factors of oral cancer. In this study, 28.0% believed that age was a risk factor for oral cancer.

Public awareness of the early signs of oral cancer is also low. In this study, 40.0% believed that long-term non-healing ulcers in the mouth were an early manifestation or symptom of oral cancer. In this study, 17.5% believed that the red plaque was the early manifestation of oral cancer, and 22.7% believed that the white plaque was the early manifestation [24].

A research done on Oral Cancer Knowledge and Awareness among Patients Referred to a University Dental Hospital in North Cyprus in 2021 showed the following result, a mouth sore that does not heal (64%) and abnormal mass/lump in the mouth (59.2%) were detected at the highest rates as symptoms of oral cancer, and the percentages of other symptoms followed by white/red patch in the mouth (41.6%), difficulty of chewing/swallowing (40%), and slow change in voice quality (34.4%).

While 87.2% of the participants considered tobacco use as a risk factor for oral cancer, this rate dropped to 65.6% for alcohol use. Stopping tobacco use was the most common option to prevent oral cancer (79.6%), the prevalence of other actions was quitting alcohol use (66.4%), avoiding contact with Second hand smoke (37.6%), brushing and flossing your teeth twice/day (50.8%), and telling your dentist when your denture(s) do not fit well (23.3%).

In total, 62.4% of the participants stated that they were not getting any education about mouth cancer by their healthcare and 63.6% of all participants implied that their healthcare provider did not tell them that human papilloma virus (HPV) can cause mouth cancer [25].

A research done on assessment of oral cancer awareness among dental students, practitioners and patients in Manitoba, Canada, in 2018, the results from patients' assessment is as follows; only 19% of the patients have had information about oral cancer, 77% of them have no idea and 4% were not sure. 68% of the patients claimed that they are literate about oral disease, 26% were not sure and 6% had no idea. Regarding their source of information about oral cancer, 57% of the respondents mention their dentists, 28% of them mentioned media and 18% of them mentioned physicians as their main source of information. With regards to the relationship between oral cancer and smoking, alcohol drinking, unhealthy nutrition and environmental factors, 92%, 43%, 79% and 66% of the patient reported a positive relation respectfully [26].

A cross sectional Study on Oral Cancer Awareness Among Dental Patients in Omdurman, Sudan in 2017 showed the following result; a total of 57.7% (286) of individuals who participated in the research out of a total of 500 participants demonstrated good knowledge of signs and symptoms of oral cancer (the listed signs and symptoms are dry mouth, bleeding, burning sensation, numbness, difficulty in chewing, difficulty in swallowing, soreness in the mouth, loosening of teeth, red or white patches in the oral cavity, swelling and change in color).

Upon analysis of individual signs and symptoms that the participants of the research answered, unhealed ulcer reported 67.2% (336), change in color 65% (325), + white patches 63.6% (318) and soreness 62.4% (312) were the most common identified sign and symptoms.

Those of < 40 years of age identified ulcer more than their counterparts 70% (238), Identification of change in color as sign and symptom of oral cancer recognized by those <40 years scored higher than their counterparts 67.9% (231).

Media including TV and internet is the main source of information about oral cancer to those < 40 years (69.8% (215)), and those with higher education (69.4% (197)).

Urban residents had better knowledge in identifying smoking as risk factor 90% (446), with almost three times likelihood than their counterparts. Those who heard of oral cancer had better knowledge in identifying smoking as risk factor with likelihood of more than two times than their counterparts. Females reported alcohol and sedentary life style as risk factors more than males 83.2% (268), and 18.9% (61), respectively. Urban residents reported sedentary life style as risk factor more than suburban counterpart 17.2% (81). Family history reported as risk factor for oral cancer by those whom source of information by direct contact with health workers 34.9 (52) [27].

CHAPTER THREE

3.OBJECTIVE

3.1 General objective

-To assess oral cancer awareness among patients that visited department of dentistry and oral and maxillofacial surgery OPD at Tikur Anbesa Specialized Hospital in Addis Ababa, Ethiopia.

3.2 Specific objectives

- To assess knowledge of patients that visited department of dentistry and oral and maxillofacial surgery OPD at Tikur Anbesa Specialized Hospital in Addis Ababa, Ethiopia on risk factors of oral cancer

- To assess knowledge of patients that visited department of dentistry and oral and maxillofacial surgery OPD at Tikur Anbesa Specialized Hospital in Addis Ababa, Ethiopia on signs and symptoms of oral cancer

CHAPTER FOUR

4. METHODOLOGY

4.1 Study setting and period

4.1.1. Study setting

This study was conducted at Addis Ababa University, College Health sciences Tikur Anbessa Specialized Hospital. Tikur Anbessa Specialized Hospital is the largest referral hospital in Ethiopia. It was established in 1964 E.C, and is now the main teaching center for both clinical and preclinical training of most health science disciplines. It is also an institution where specialized clinical services that are not available in other public or private institutions are rendered to the whole nation. The various departments, facilities, and residents under specialty training provide patient care in the hospital. In addition, almost all regional and federal hospitals in Addis Ababa are affiliated to the school of medicine as clinical services and training sites.

4.1.2 Study period

The study was conducted from January, 2023 to June, 2023.

4.1.3 Study design

The study design is a descriptive cross-sectional prospective study to assess the awareness of oral cancer among patients that visited department of dentistry and oral and maxillofacial surgery unit at Tikur Anbesa Specialized hospital. Data was collected using interviewer administered questioner.

4.2 Population

4.2.1 Target population: All patients that has come to Tikur Anbesa Specialized Hospital, in Addis Ababa, Ethiopia

4.2.2 Source population: All patients that visited department of dentistry and OMFS clinic at Tikur Anbesa Specialized Hospital in Addis Ababa, Ethiopia during the study period

4.2.3 Study population: All patients that were willing and was seen at OMFS clinic in Tikur Anbesa Specialized Hospital during the study period.

4.3 Sample size determination & sampling procedure

4.3.1 sample size determination

The sample size was calculated using the single population proportion formula. Since there is no research conducted on awareness of oral cancer among patients in Ethiopia, 50% of the proportion of the population was taken by assuming level of significance < 0.05 at 95% level of confidence, and 5% margin of error.

Z = normal standard distribution value at 95% confidence level of $\frac{\alpha}{2} = 1.96$

n= Sample size,

p= the proportion of treatment outcome of nephrotic syndrome 50% will be taken.

d= Margin of error between the sample and population=5%=0.05

$$N = \frac{Z^2 \cdot p(1-p)}{d^2} = \frac{(1.96)^2 \cdot 0.5 \cdot 0.5}{(0.05)^2} = 384$$

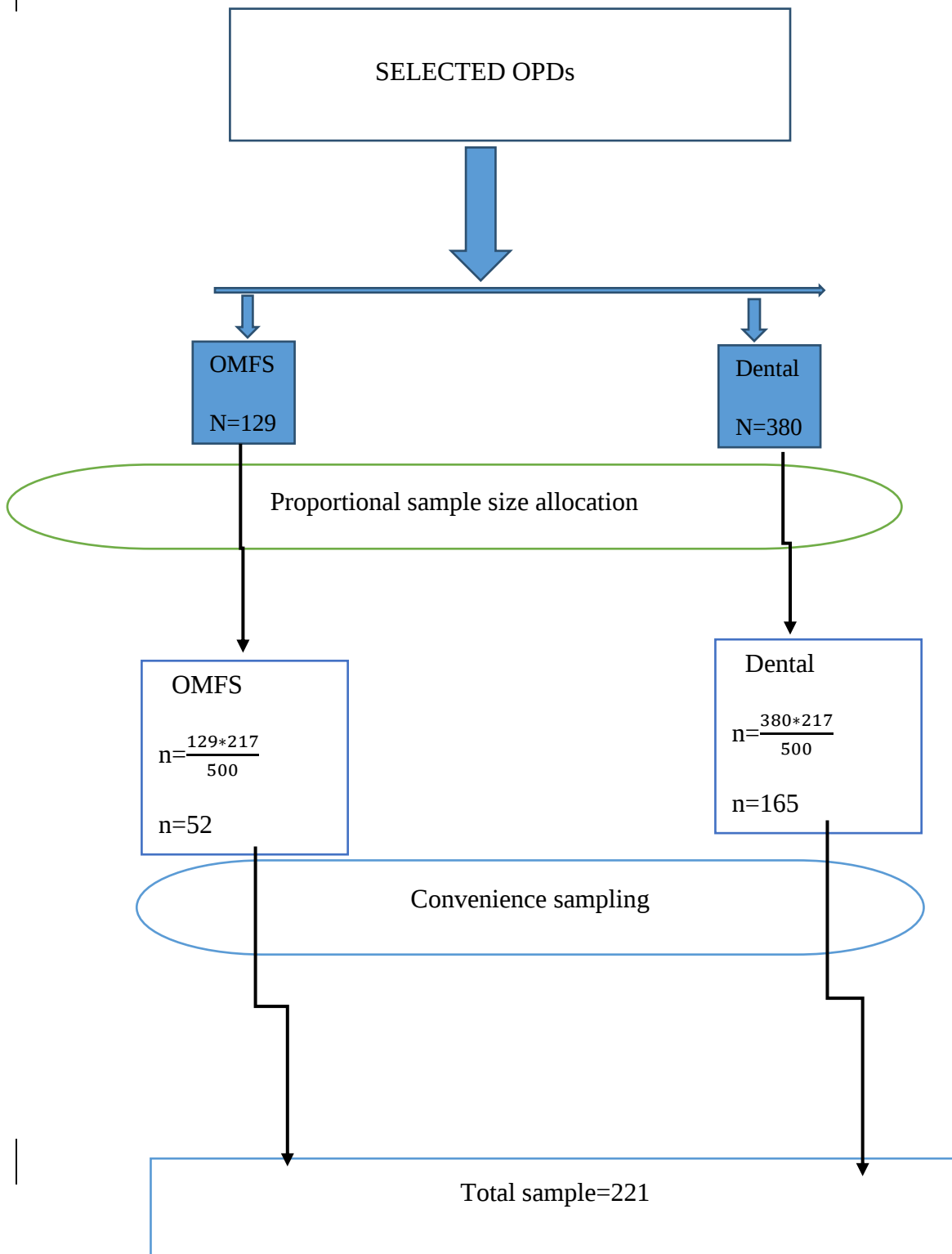
Since the total population was less than 10000 the correction formula was utilized:

$$n_{final} = \frac{n}{1 + \frac{n}{N}}$$

$$= 384 / (1 + 384/500) = 217.1 \approx 217$$

4.3.2 sampling procedure

The study was conducted at two outpatient clinics that are under Tikur anbesa hospital which are OMFS OPD and dental OPD. The study population was selected using convenience sampling technique. The study units were selected through proportional allocation to determine the sample size for each outpatient clinic based on the monthly flow of patients in each OPD by observing previous months' records. Therefore, by assuming around N=129 patients will come to OMFS OPD and N=380 patients will come to dental OPD.



4.4 Study variables

4.4.1. **Independent variables:** Age, sex, level of education, occupation, residence, habit

4.4.2 **Dependent variable:** knowledge, attitude and perception of oral cancer

4.5 Eligibility criteria

4.5.1 Inclusion criteria

- Those patients who came seeking medical help at OMFS clinic
- Those patients who were available during data collection
- Those patients who were volunteer
- Patients who are greater than 18-year-old

4.5.2 Exclusion criteria

- Those patients who were not volunteer

4.6 questions and variables

Age group assessed by the question “what is your age” response options recoded into (0) “18-30 years”, (1) “31-40 years”, (2) “41-50 years”, (3) “51-60 years”, (4) “>60 years”

Education level” using response options (1) “unschooled/illiterate”; (2) “primary level”; (3) “secondary level”; (4) “university” (5) ‘post-graduation”. The original categories recoded into (0) unschooled (includes responses 1); (1) “basic education” (includes responses 2,3); (2) “university & post-university” (includes response 4,5)

Employment was assessed via the question “what is your occupation” using response options (1) “students”; (2) “labor”; (3) “employee”; (4) “unemployed”; (5) “retired”. The original categories recoded into (0) unemployed (including original categories 4, 5); (1) employed (including original categories 2, 3,); (2) students (including original category 1)

Residence was assessed via the question “where is your residence” using response options (1) “urban”; (2) “rural”. The original categories recoded into (0) urban (including the original category 1); (1) rural (including the original categories 2).

Heard of oral cancer was assessed via the question; “have you heard of oral cancer”; using response options (1) “yes”; (2) “no”; (3) “I don’t know”. The original categories recoded into (0) no (includes original response 2,3); (1) yes (includes original response 1).

Sources of information was assessed via the question; “from where did you get this information” using response options (1) “general media (TV, radio)”, (2) “internet (social media)”, (3) “health workers”, (4) “news- paper and magazine”, (5) “other people”. The original categories recoded into (0) from media (includes original response 1, 2, 4); (1) from direct contact (includes 3, 5).

Knowledge of signs and symptoms was assessed via eleven questions and the response options (1) “yes”; (2) “no”; (3) “i don’t know”. The original categories recoded into (0) poor knowledge (includes original response 2, 3); (1) good knowledge (includes original response 1).

Knowledge of risk factors of oral cancer was assessed via ten questions using response options (1) “strongly agree”, (2) “agree”, (3) “undecided/neutral”, (4) disagree, (5) “strongly disagree”. The original categories recoded into (0) poor knowledge of risk factors (includes 3, 4, 5); (1) good knowledge of risk factors (includes original response 1, 2).

4.7 Data collection

➤ Data was collected by recording the required information on prepared structured questioner and in the questioner sociodemographic characters and questions that assess patient's awareness on oral cancer were included.

4.8 Operational Definition

Knowledge - facts, information, and skills acquired through experience or education; the theoretical or practical understanding of a subject.

Attitude - a settled way of thinking or feeling about something.

Perception - the way in which something is regarded, understood, or interpreted Patient – an individual under medical care & treatment

Sign – an objective observable indication of a disease

Symptom – something felt or experienced

Oral cancer – a malignant tumor that develops in a part of the mouth. It may be on the surface of the tongue, the inside of the cheeks, the roof of the mouth (palate), the lips or gums.

4.9 Data quality control

The quality of the structured questionnaires was assessed by pretesting. The questioner was pre-tested among limited patients and the necessary adjustments was made. Verbal consent was taken from every participants of the study.

The data collectors were informed in brief regarding the topic so that they can explain the subject to the study population adequately. At the end of each day all of the collected data was reviewed and checked for completeness and relevance.

4.10 Data processing and Data analysis

- Questionnaires were checked for completeness, missing items and consistency.
- After completion of data collection, data was inserted into EpiData manager version 4.4.0.0
- Finally, the data was transferred from the EpiData manager into IBM.SPSS version 27 and descriptive analysis was performed

4.11 Ethical consideration

Before data collection, letters were written from AAU, CHS, department of dentistry, Research and Ethical Review Committee (RERC).

4.12 Dissemination of results

A result is put in a research paper that is to be submitted and will be reported to the Addis Ababa University College of Health Science, Department of Dentistry, oral and Maxillofacial Surgery unit and to other concerned bodies. Results of the study will also be presented in annual conference of professional society and annual research day. Finally, the result will be submitted to peer review journal for publication.

CHAPTER FIVE

Result

In this research a total of 221 patients were participated out of which a total of 60.2% (n= 133) of the participants were female and 39.8% (n=88) were male. A total of 38.9% (n=86) of the participants were in age range of 18 to 30 years old, 29.0% (n=64) of the respondents were in age range of 31 to 40 years old, 17.6% (n=39) were in age range of 41 to 50 years old, 9.5% (n=21) of the respondents were in age range of 51 to 60 years old and the minority were those above 60 years old accounting for 5.0% (n=11) of the respondents.

The majority of the participants 86.4% (n=191) were urban residents and above half of the participants 57.9% (n=128) were employed.

More than half of the participants 52.0% (n=115) had a basic education which includes primary and secondary level of education, 40.7% (n=90) of the participants had a university and post-graduation level of education and the rest 7.2% (n=16) of the participants were unschooled or cannot write and read.

Among the respondents 10.0% (n=22) were chat chewers, 6.3% (n=14) were cigarette smokers, 14.0% (n=31) were alcohol drinkers, 9% (n=2) were shisha smokers, 3.6% (n=8) were multiple substance users and the majority 65.2% did not have any habit of substance use.

The majority of the respondents 75.1% (n=166) have never heard of oral cancer before and 24.9% (n=55) of them reported that they have heard of oral cancer and have prior information. From those who had a prior information 14.5% (n=32) of the participants learned about oral cancer from media which includes TV, Radio, internet, social media, news-paper and magazine whereas 7.2% (n=16) of the participants learned about oral cancer from other people which includes health professionals that were reported by 1.4% (n=3) of the respondents and people that are not health professionals and were reported by 5.8% (n=13) of the respondents.

Table 1; Demographic characteristics of patients who visited Department of dentistry and OMFS clinic at Tikur Anbesa hospital from May to June 2023, Addis Ababa, Ethiopia (n=221)

Demographic data	Frequency	Percent
Age		
18-30 years	86	38.9%
31-40	64	29.0%
41-50	39	17.6%
51-60	21	9.5%
> 60	11	5.0%
Sex		
Male	88	39.8%
Female	133	60.2%
Setting		
Urban	191	86.4%
Rural	30	13.6%
Level of education		
Unschoolled/ can't write & read	16	7.2%
Basic education (primary & secondary level)	115	52.0%
University & post graduate	90	40.7%
Occupation		
Unemployed	57	25.8%
Employed	128	57.9%
Student	36	16.3%

Table 2; Habit of substance use and source of information about oral cancer for patients who visited department of Dentistry and OMFS clinic at Tikur Anbesa Hospital, from May to June 2023, Addis Ababa, Ethiopia (n=221)

	Frequency	Percentage
Substance use		
Chewing chat	22	10.0%
Smoking	14	6.3%
Drinking alcohol	31	14.0%
Shisha smoking	2	9%
Multiple substance uses	8	3.6%
None	144	65.2%
Heard of oral cancer		
Yes	55	24.9%
No	166	75.1%
Source of information		
From media	32	14.5%
From direct contact	16	7.2%

Awareness of risk factors associated with oral cancer:

About 69.2% of the respondents believed that cigarette smoking is a risk factor for oral cancer and 55.2% of the respondents believed that alcohol drinking is a risk factor for oral cancer. Regarding family history of oral cancer only 38.4% of the respondents considered it as a risk factor and almost equivalent to this 35.8% of the respondents did not believe that family history of oral cancer as a risk factor.

Only 22.1% of the respondents considered exposure to sunlight as a risk factor. Old age was depicted as a risk factor by 36.2% of the participants. Poor oral hygiene was also believed to be a risk factor by large proportion of the participants which is around 46.6%. Chronic trauma was considered as a risk factor by 38.4% of the respondents, on the other hand 22.2% of the respondents agreed that sedentary life style is a risk factor for oral cancer and hot and spicy food is considered as a risk factor by 17.6% of the respondents. The other unique question that was presented to the participants was demonic attack as risk factor and 13.1% of the respondents believed that it is a risk factor but the majority of the respondents (71.5%) did not believe that it can be a risk factor for oral cancer. See table 2

Table 3; Percentages and frequencies of recognized risk factors of oral cancer by patients seen at the department of Dentistry and OMFS Clinic at Tikur Anbesa Hospital, from May to June 2023, Addis Ababa, Ethiopia (n=221)

Risk factors	Agree	Disagree	Neutral/ undecided
Cigarette smoking	153(69.2%)	26(26.2%)	42(19.0%)
Alcohol drinking	122(55.2%)	52(23.5%)	47(21.3%)
Family history	85(38.4%)	79(35.8%)	57(25.8%)
Exposure to sun light	49(22.1%)	103(46.6%)	69(31.2%)
Old age	80(36.2%)	74(33.5%)	67(30.3%)
Poor oral hygiene	103(46.6%)	56(25.3%)	62(28.1%)
Chronic trauma	85(38.4%)	65(29.4%)	71(32.1%)
Sedentary life style	49(22.2%)	94(42.5%)	78(35.3%)
Hot & Spicy food	39(17.6%)	122(55.2%)	60(27.1%)
Demonic attack	29(13.1%)	158(71.5%)	34(15.4%)

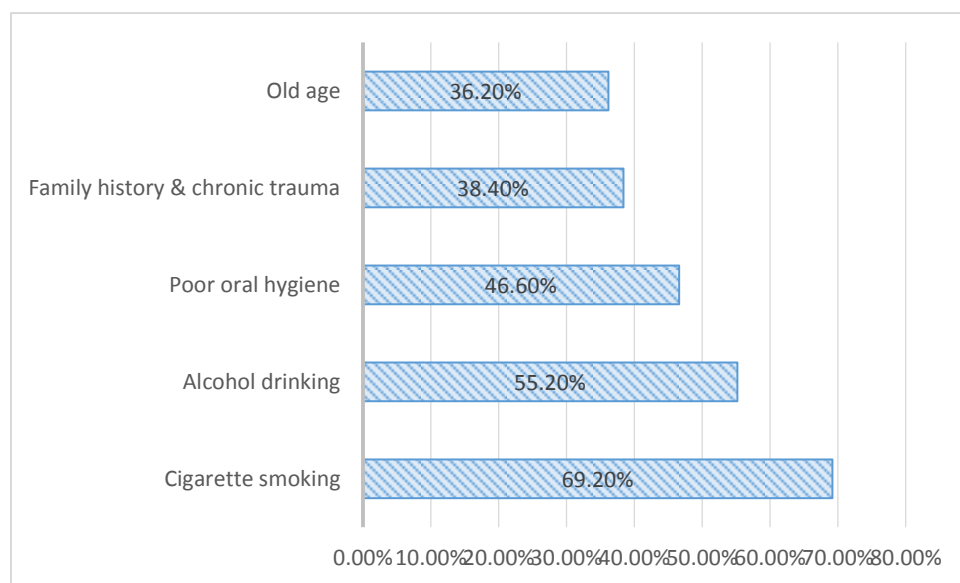


Figure 1; the most common recognized risk factors of oral cancer by the respondents of research done on patients who visited Department of dentistry & OMFS clinic at tikur anbesa hospital, from May to June 2023, Addis Ababa, Ethiopia (n=221)

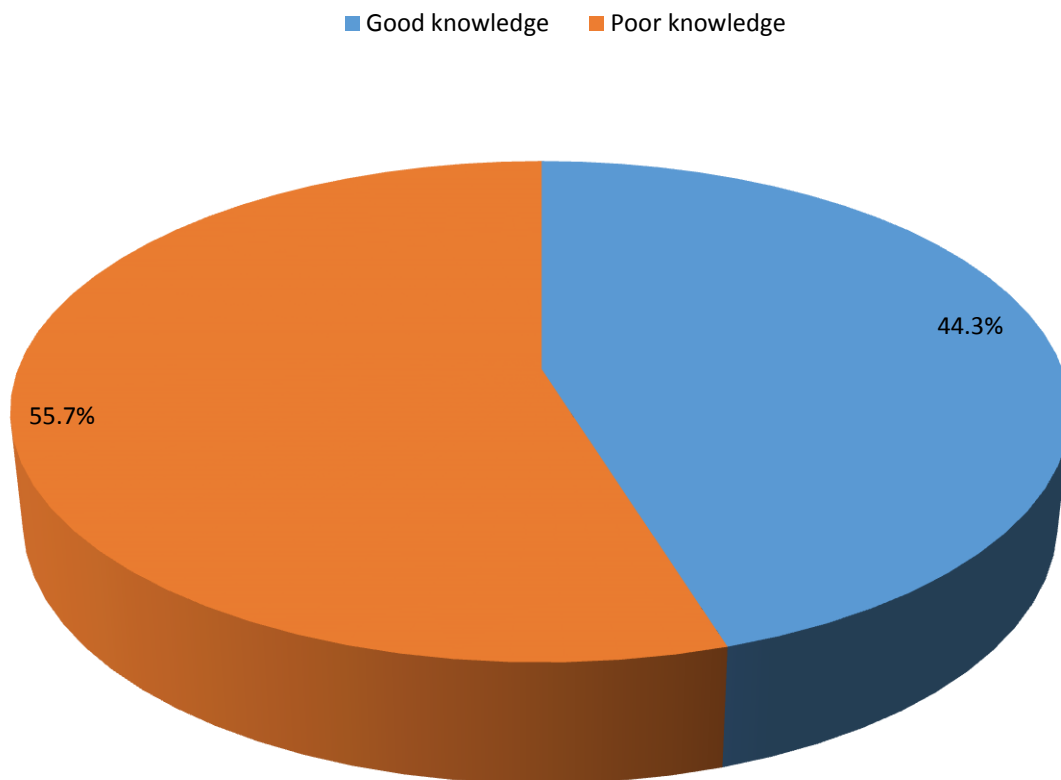


figure 2; overall assesment of recognized risk factors by the respondants of research done among patients who visited department of dentistry & OMFS clinic at Tikur Anbesa Hospital, from May to June,2023 Addis Ababa, Ethiopia (N=221)

The overall assessment of awareness on the risk factors of oral cancer leads us to conclude that their level of awareness is poor.

Awareness of sign and symptoms of oral cancer:

From the listed sign and symptom of oral cancer on the questioner sore or ulcer that does not heal and bleeds was believed to be a symptom of oral cancer by 38.9% of the respondents, following that abnormal swelling was chosen by 33.0% of the participants, thickening or lump in the neck is believed to be a sign of oral cancer by 26.7% of the respondents. Loss of taste was depicted as a sign & symptom of oral cancer by 20.4%, bleeding by 20.8%, burning sensation by 19.9%, numbness by 17.2%, difficulty of chewing and swallowing by 17.2%, undue falling of teeth by 19.9%, continuous pain by 23.5% and white or red plaque by 24.9% of the respondents. See table 2.

Table 4; Percentages and frequencies of recognized signs, symptoms of oral cancer by patients seen at the department of dentistry and OMFS clinic at Tikur Anbesa Hospital from May up to June 2023, Addis Ababa, Ethiopia (N=221)

Sign and symptoms	Yes	No
Loss of taste	45(20.4%)	176(79.7%)
Bleeding	46(20.8%)	175(79.2%)
Burning Sensation	44(19.9%)	177(80.1%)
Numbness	38(17.2%)	183(82.8%)
Difficulty in chewing & swallowing	55(24.9%)	166(75.2%)
Abnormal swelling	73(33.0%)	148(67%)
Sore/Ulcer that doesn't heal & bleeds	86(38.9%)	135(61%)
Undue falling of teeth	44(19.9%)	177(80.1%)
Continuous pain	52(23.5%)	169(76.5%)
White/red patch	55(24.9%)	166(75.1%)
Thickening/ Lump in the neck	59(26.7%)	162(73.3%)

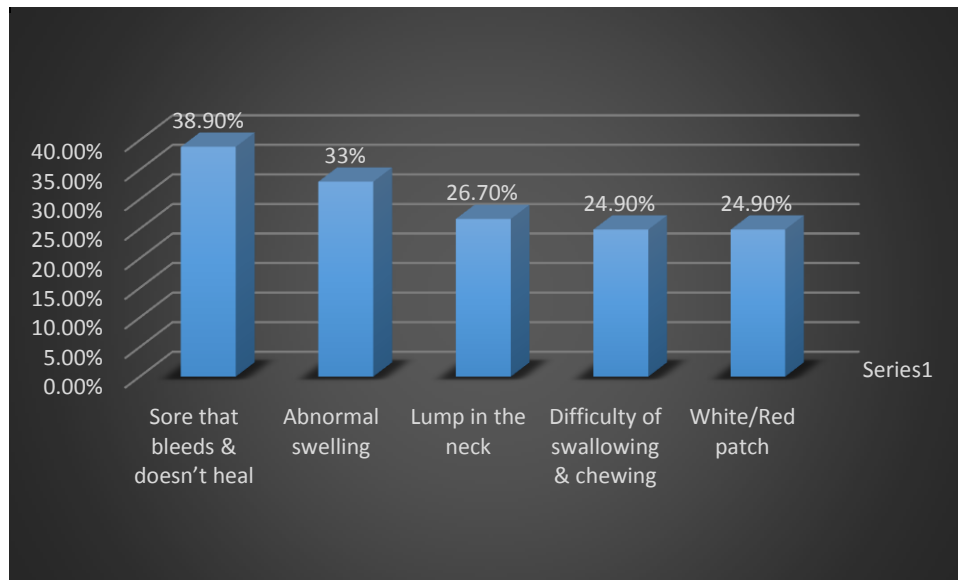


Figure 3; the most common recognized sign and symptoms of oral cancer among the participants who visited department of dentistry and OMFS clinic at Tikur Anbesa Hospital, from May up to June, 2023 Addis Ababa, Ethiopia (N=221)

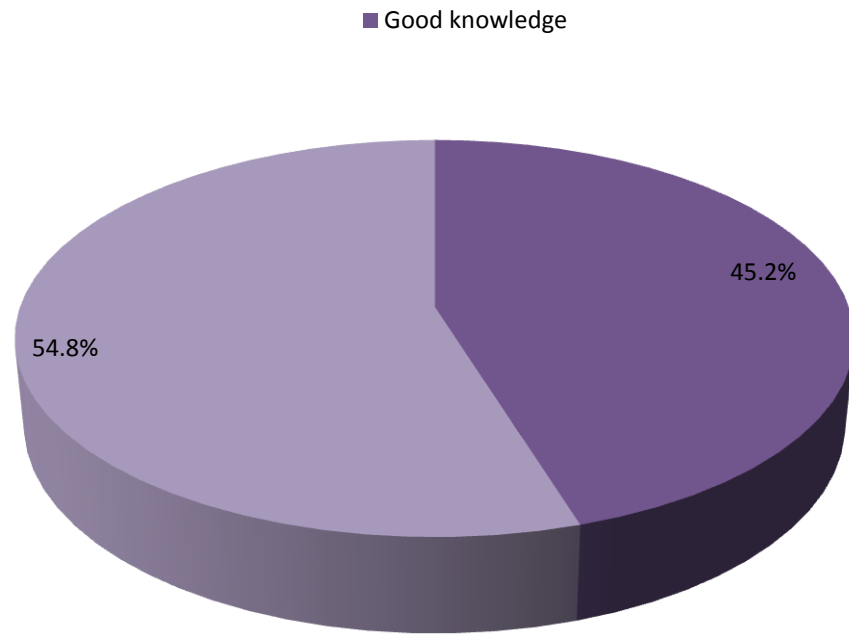


figure 4; overall assesment of recognized sign & symptom awareness among the respondents of research done among patients who visited department of dentistry & OMFS clinic at Tikur Anbesa Hospital, from May to June, 2023 Addis Ababa, Ethiopia (N=221)

The overall assessment of awareness on sign and symptom of oral cancer lead us to conclude that their level of awareness is poor.

Upon analysis using cross tabulation on SPSS relation of gender with knowledge of sign and symptoms, 54.5% of males showed poor knowledge whereas 45.4% of them revealed good knowledge and 54.8% of females revealed poor knowledge whereas 45.1% of them revealed good knowledge.

Table 5; cross tabulation of gender and knowledge of sign & symptom of patients seen at the department of dentistry and OMFS clinic at Tikur Anbesa Hospital from May to June 2023, Addis Ababa Ethiopia (n=221)

Gender * knowledge of risk factor Cross tabulation

		Knowledge of risk factor		Total
		poor knowledge	good knowledge	
Sex	male	48	40	88
	female	73	60	133
Total		121	100	221

Cross tabulation result of the relation of gender with knowledge of risk factors revealed 54.5% of males have poor knowledge whereas 45.4% of them revealed good knowledge and 56.3% of females revealed poor knowledge whereas 43.6% of them revealed good knowledge. This tells us that there is no significant knowledge difference between females and males.

Table 6; cross tabulation of gender and knowledge of risk factor of patients seen at the department of dentistry and OMFS clinic at Tikur Anbesa Hospital from May to June 2023, Addis Ababa Ethiopia (n=221)

Sex * risk factor Cross tabulation

		Knowledge of Risk factor		Total
		poor knowledge	good knowledge	
Sex	male	48	40	88
	female	75	58	133
Total		123	98	221

Cross tabulation result of the relation of age of each group of the participants with knowledge of risk factor revealed the following result; from those within age group of 18 up to 30 years old, 48.8% of them revealed good knowledge whereas 51.6% of them showed poor knowledge and from those with in age group of 31 up to 40 years old, 45.3% of them revealed good knowledge where as 54.6% of them revealed poor knowledge and from those within age group of 41 up to 50, 35.89% of them revealed good knowledge whereas 64.1% of them revealed poor knowledge and from those within age group of 51 up to 60 years old 42.9% of them revealed good knowledge whereas 57.1% of them revealed poor knowledge and finally from those with in age group of above 60, 36.3% of them showed good knowledge whereas 63.6% of them revealed poor knowledge. This result showed that the individuals who are young are relatively knowledgeable about oral cancer which might be associated with the curiosity of the younger individuals to know about different things.

Table 7; cross tabulation of Age and knowledge of risk factor of patients seen at the department of dentistry and OMFS clinic at Tikur Anbesa Hospital from May to June 2023, Addis Ababa Ethiopia (n=221)

		Knowledge of risk factor		Total
		poor knowledge	good knowledge	
Age	18-30	44	42	86
	31-40	35	29	64
	41-50	25	14	39
	51-60	12	9	21
	>60	7	4	11
Total		123	98	221

Upon analysis of the relation of level of education with knowledge of sign and symptoms of oral cancer among the participants of this research revealed the following result; from those who claimed that they were unschooled or can't write and read, 81.2% of them revealed good knowledge and the rest 18.75% of them revealed poor knowledge, from those participants who claimed that they had basic education which includes primary and secondary school level of education 51.3% of them revealed good knowledge whereas 48.6% of them showed poor knowledge and from the rest of the participants who claimed that they had a university and post-graduation level of education only 31.1% of them revealed good knowledge and the rest 68.9% of them revealed poor knowledge. This showed that the level of education of the individuals does not really matter or contribute to their knowledge of oral cancer.

Table 8; cross tabulation of level of education and knowledge of sign & symptom of patients seen at the department of dentistry and OMFS clinic at Tikur Anbesa Hospital from May to June 2023, Addis Ababa Ethiopia (n=221)

Level of education * knowledge of sign & symptom cross tabulation

		Knowledge of sign & symptom		Total
		poor knowledge	good knowledge	
Level of education	unschooled/ can't write or read	3	13	16
	basic education(primary & secondary)	56	59	115
	University & post University	62	28	90
Total		121	100	221

Upon analysis of the relation of residence of the participants with their knowledge of sign and symptoms of oral cancer the following result was obtained; 40.8% of those who claimed that they are living in urban area showed good knowledge whereas 59.1% of them revealed poor knowledge. On the contrary from those who claimed that their habitat is in rural area 73.3% of them revealed good knowledge and the rest 26.6% of them revealed poor knowledge. This result also nullifies the assumption that urban residents are more knowledgeable about oral cancer.

Table 9; cross tabulation of residence and knowledge of sign & symptom of patients seen at the department of dentistry and OMFS clinic at Tikur Anbesa Hospital from May to June 2023, Addis Ababa Ethiopia (n=221)

Residence * knowledge of sign & symptom Cross tabulation

		Knowledge of sign & symptom		Total
		poor knowledge	good knowledge	
Where is your residence	Urban	113	78	191
	Rural	8	22	30
Total		121	100	221

CHAPTER SIX

Discussion

This study was conducted in Addis Ababa University, College of Health Sciences, Tikur Anbesa Specialized Hospital, Addis Ababa, Ethiopia.

As per our knowledge this study is the first of its kind in Ethiopia. This study provides valuable information about public awareness of risk factors, signs and symptoms of oral cancer.

Oral cancer is largely considered a preventable disease and substantial public awareness and information may lead to a decrease in the number of oral cancer diseases in the population. It is quite understandable that education on oral cancer in a population is directly associated with the prognosis.

The long-term prognosis of oral cancer is not satisfactory, with a 5-year survival rate (largely of roughly 50%), the prognosis being a consequence of various factors. Sadly, most oral cancers, even in leading countries, are discovered in advanced stages and lack of public knowledge and awareness about the signs and risk factors of oral cancer contributes to this [28].

Various socioeconomic factors may contribute to public oral cancer awareness and knowledge. In these study though there was no significant association between level of knowledge and awareness and gender. These might be attributed to the increasing educational programs in the media that can be assessed easily even with our cell phones. This finding contradicts other reports in terms of association between gender and knowledge of oral cancer which reported females being more knowledgeable and reason out by saying that it is because females are more concerned about their health in addition to the fact that females are more active in searching for health information [29-32].

Among the different demographic factors listed in these research the only factor that showed significant association is age and knowledge of risk factor. Those younger individuals scored higher than the elderlies which might be attributed to the curiosity of younger individuals to know about different things. These finding resembles other studies carried out among Iranians and Malaysians [33-35].

The results of this study showed that public awareness of oral cancer is low, and about 75.1% of the respondents had never even heard of oral cancer. Similarly, studies done in a few countries or regions reported a lower awareness rate of oral cancer among residents, such as 23.7% in Portugal [36], 30% in Tehran, Iran [37]. The awareness rate of oral cancer in India and Malaysia is closely related to the high incidence of oral cancer there.

From the participants of the study 24.9% of them had prior information about oral cancer and out of these total respondents who had prior information about oral cancer 14.5% of them received this information from mass media. This indicates the importance of mass media in educating the public and raising awareness about oral cancer signs, symptoms and risk factors which would entail an increase in early detection, diagnosis and thus survival rates [38]. The result confirm findings published in previous studied reporting that mass media is a common and effective source of information regarding oral cancer [39,40,41].

When we specifically see the proportion of participants who received their information from dentists and other health professionals they account for 1.4% of the respondents from a total of 7.2% of participants who received information about oral cancer by contact with another person. This result indicated the need for dental professionals to be well acquainted in the knowledge of oral cancer and give the necessary information and also advise their patients about oral cancer risk factors and early sign and symptoms. This result is consistent with earlier studies carried out on Indian and Italian patients [42,43].

In these research public awareness of risk factors associated with oral cancer is weak with the overall assessment showing only 44.3% of the participants showing good knowledge of risk factors of oral cancer. These result is obtained by dichotomizing the composite score using the mean obtained from the data (i.e. mean=2.11). Individuals who have scored above and equal to the mean were categorized as having good level of knowledge and those who have scored below the mean knowledge score were classified as having poor level of knowledge.

In this study from the listed risk factors of oral cancer, cigarette smoking scored high (69.2%). This result is comparable to result obtained in Sudan where 89% of the participants labelled tobacco smoking as a risk factor for oral cancer [44]. That may be due to continuous anti-tobacco focus strategies such as ban on advertisements, increase the prices and taxes and restriction areas, which play a role in achieving behavioral change [45]. On the other hand, when the result obtained in these research is compared to research done in Beijing China it is far above, where only 39.6% of the respondents believed that smoking was a risk factor for oral cancer [46]. This may be related to the implementation of global anti-smoking actions in recent decades. Most people knew that smoking was harmful to health; however, most people believed that smokers were more likely to develop lung cancer. In fact, in addition to lung cancer, smokers are also more likely to develop throat and oral cancer [47].

Public awareness of the early signs of oral cancer is also low. In this study, 38.9% believed that non-healing ulcer or sore that bleeds in the mouth were an early manifestation or symptom of oral cancer, which was lower than results obtained in other countries (57.3%-90%) [47-49, 50,51]. In this study, 24.9% believed that white or red plaque was early manifestation of oral cancer. In foreign studies, the recognition of red plaque or white plaque as the early manifestation of oral cancer was slightly higher (39.8-58%) [48, 49, 50]. Most oral cancers develop from potentially malignant lesions that exist for a long time, especially in areas with a high incidence of oral cancer. Therefore, it is very important to strengthen early diagnosis and treatment.

Conclusion and Recommendation

The results of this study showed poor awareness of the participants on oral cancer in general but when we specifically look their knowledge on risk factors of oral cancer especially about tobacco it is relatively good. This indicates the need for more structured preventive programs using media. Regarding the rest of the risk factors, knowledge of sign and symptoms they demonstrate poor knowledge therefore this study recommends that dentists and other dental professionals do more on this front since they have a key role in early diagnosis by performing oral cancer screening, escalating levels of knowledge and in amending misconceptions about oral cancer. This is very crucial given the preventable nature of oral cancer.

Limitations of the study are, the first is because the questioners were administered by interviewer the answers of the participants might be subjected to recall bias and information bias (social desirability), therefore participants of the study may either have under or over reported their responses to the questions.

The other limitation is on the generalizability of the results of this study which should be done with caution and it is because the participants of this study are only those who attended department of dentistry and outpatient department of oral and maxillofacial surgery, Tikur Anbesa Hospital and even if this can portray an important image of the current situation, it should only be interpreted with caution. Therefore, more studies with a larger sample of participants are highly recommended.

CHAPTER EIGHT

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Annex

Annex-1

Questioner on awareness of oral cancer

1. Age-----
2. Sex
 1. Male
 2. Female
3. What is your education level?
 1. Unschooled/ illiterate
 2. Primary level
 3. Secondary level
 4. University
 5. Post-graduation
4. What is your occupation?
 1. Student
 2. Labor
 3. Employee
 4. Unemployed
 5. Retired
5. Where is your residence?
 1. Urban
 2. Rural
6. Substance use
 1. Chewing chat
 2. Smoking
 3. Drinking alcohol
 4. Shisha smoking
 5. None
 6. Multiple substance use

7. Have you heard of oral cancer?
 1. Yes
 2. No
 3. I don't know
8. If yes, from where did you get the information?
 1. General media (TV, Radio)
 2. Internet (social media)
 3. I don't know
 4. Newspaper & magazine
 5. Other people
 6. Health professionals
 7. Multiple source
9. Do you think loss of taste is a sign of oral cancer?
 1. Yes
 2. No
 3. I don't know
10. Do you think bleeding from the gum is a sign of oral cancer?
 1. Yes
 2. No
 3. I don't know
11. Do you think burning sensation is a sign of oral cancer?
 1. yes
 2. No
 3. I don't know
12. Do you think numbness of tongue or other areas of the mouth is a sign of oral cancer?
 1. Yes
 2. No
 3. I don't know

13. Do you think difficulty in swallowing or chewing is a sign of oral cancer?
1. Yes
 2. No
 3. I don't know
14. Do you think abnormal swelling is a sign of oral cancer?
1. Yes
 2. No
 3. I don't know
15. Do you think soreness in the mouth that bleeds easily & does not heal is a sign of oral cancer?
1. Yes
 2. No
 3. I don't know
16. Do you think undue falling or losing of teeth is a sign of oral cancer?
1. yes
 2. no
 3. I don't know
17. Do you think continuous pain in the jaw is a sign of oral cancer?
1. Yes
 2. No
 3. I don't know
18. Do you think white or red patch on the gum is a sign of oral cancer?
1. Yes
 2. No
 3. I don't know
19. Do you think thickening or lump in the neck is a sign of oral cancer?
1. Yes
 2. No
 3. I don't know

20. Do you think smoking cigarette or shisha is a risk factor for oral cancer?

1. Strongly agree
2. Agree
3. Neutral
4. Disagree
5. strongly disagree

21. Do think drinking alcohol is a risk factor?

1. Strongly agree
2. Agree
3. Neutral
4. Disagree
5. Strongly disagree

22. Do think family history of oral cancer is a risk factor for oral cancer?

1. Strongly agree
2. Agree
3. Neutral
4. Disagree
5. Strongly disagree

23. Do you think exposure to sunlight is a risk factor for oral cancer?

1. Strongly agree
2. Agree
3. Neutral
4. Disagree
5. strongly disagree

24. Do you think old age is a risk factor for oral cancer?

1. Strongly agree
2. Agree
3. Neutral
4. Disagree
5. Strongly disagree

25. Do you think poor oral hygiene is a risk factor for oral cancer?

1. Strongly agree
2. Agree
3. Neutral
4. Disagree
5. Strongly disagree

26. Do you think chronic trauma to the oral cavity is a risk factor for oral cancer?

1. Strongly agree
2. Agree
3. Neutral
4. Disagree
5. Strongly disagree

27. Do you think sedentary life style is a risk factor for oral cancer?

1. Strongly agree
2. Agree
3. Neutral
4. Disagree
5. Strongly disagree

28. Do you think hot and spicy food is a risk factor for oral cancer?

1. Strongly agree
2. Agree
3. Neutral
4. Disagree
5. strongly disagree

29. Do you think spiritual or demonic attack is a risk factor for oral cancer?

1. Strongly agree
2. Agree
3. Neutral
4. Disagree

5. Strongly disagree