



ADDIS ABABA UNIVERSITY

COLLEGE OF HEALTH SCIENCE

SCHOOL OF PUBLIC HEALTH

**Magnitude and factors associated with late stage at diagnosis of cervical cancer patients at
Tikur Anbessa Specialized Hospital, Addis Ababa, Ethiopia**

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List of Acronyms and Abbreviations

AAU- Addis Ababa University

AOR- Adjusted Odd Ratio

BPE- Bimanual Pelvic Examination

CI - Confidence Interval

COR- Crude Odd Ratio

CT- Computerized Tomography

ETB - Ethiopian Birr

FIGO - International Federation of Gynecology and Obstetrics

HDR- High-Dose Rate

HIV- Human Immune Deficiency Virus

HPV- Human Papilloma Virus

HMIS- Health Management Information Systems

KM- Kilo Meter

OR- Odds Ratio

PAP- Papanicolaou

PI- Principal Investigator

REC- Research Ethics Committee

STI- Sexual Transmitted Infection

TASH- Tikur Anbessa Specialized Hospital

WHO- World Health Organization

Abstract

Back ground: Globally, cervical cancer is the fourth most common cancer in women with most of the deaths occurring in developing countries, particularly in low- and middle income countries. In Ethiopia, evidences suggested that many women seek treatment in the advanced stage of the disease which complicates management and intervention of the disease. Data on levels and factors associated to late stage of diagnosis are limited.

Objective: To assess the magnitude and factors associated with late stage at diagnosis of cervical cancer among cervical cancer patients at Tikur Anbessa Specialized Hospital, Addis Ababa, Ethiopia from July 22 to October 30, 2020.

Methods: A facility based cross sectional study was conducted among cervical cancer patients referred to Tikur Anbessa Specialized Hospital, Addis Ababa, Ethiopia. Data was collected using a structured interviewer administered questionnaire and patient's medical records were reviewed to extract relevant information. Every consecutive new case of cervical cancer patient who came during data collection period were enrolled in the study. Data was coded and entered into Epidata 4.64 and exported to Stata 14 for cleaning, recoding and analysis. Descriptive statistics were computed to describe the characteristics of study participants. Those variables with p-value < 0.05 at 95% CI in the multivariable binary logistic regression were considered as having a statically significant association with the outcome variable, late stage at diagnosis. Stage at diagnosis was determined using the International Federation of Gynecology and Obstetrics (FIGO) staging system.

Result: A total of 392 women with confirmed cervical cancer were enrolled. The mean age of the patients was 58 ± 10 years, majority 257 (65.56%) were married, more than half (56.63%) came from rural area and 229 (58.42 %) had no formal education. About 53.8% of patients were diagnosed with late stage disease. The odds of late stage diagnosis of cervical cancer was more than two times higher AOR=2.38 [95%CI: 1.03, 5.11] among those patients who had poor knowledge, about four times higher AOR= 3.41 [95%CI: 1.69, 6.88] among patients who were residing in rural areas, two times higher AOR=2.03 [95%CI: 1.03, 3.99] among patients who had shared their symptom late with someone.

Conclusion: This study identified that poor knowledge of cervical cancer, women residing in rural areas and patients who shared their symptom late with someone were more likely to be diagnosed at late stage of cervical cancer. Providing health education for women on early detection methods and raising public knowledge in more comprehensible way is needed for early diagnosis of cervical cancer.

Key words: Cervical cancer, late stage diagnosis, knowledge

1. Introduction

1.1 Background

Cancer starts when cells in the body begin to grow out of control. Cervical cancer is a type of cancer that forms in tissues of the cervix and it starts in the cells lining the cervix, the lower part of the uterus(1).

It usually grows gradually and may remain asymptomatic contributing for late in diagnosis. Several risk factors increase the risk of developing cervical cancer like Human papillomavirus (HPV) infection, infection with HIV or history of other STIs, tobacco use and high parity. Infection with human papilloma virus (HPV) is known cause of cervical cancer, which is found in 99.7% of all cervical carcinomas(2).

Globally, in 2018, cervical cancer is the fourth most common cancer in women with an estimated 569,847 new cases and about 311,365 new deaths.(3). About 90% of deaths from cervical cancer occurred in low- and middle- income countries(4). In Africa, cervical cancer positions as the second most frequently diagnosed and also the leading cause of death of female cancer with 81,689 deaths ever year (20 deaths per 100,000 women)(5). According to GLOBOCAN 2018, in Ethiopia, Cervical cancer is the second most common and leading cause of death(6). The Addis Ababa city cancer registry reported that cervical cancer is the second most common cancer which contributed about 14.7% of all cancer cases in women(7). A study done in Tikur Anbessa Specialized Hospital reported that there was increasing cervical cancer incidence annually (8).

In the world, 2,784.9 million women are at risk of developing cervical cancer and of these 2,240.4 million reside in less developed regions particularly in low- and middle income countries where the burden of the disease remains exceptionally high(3). The age cervical cancer mortality rate per 100,000 women is 6.9 in the world(3). Developing countries continue to bear a disproportionate percentage of the global cervical cancer burden(9). In East Africa, the age standardized cervical cancer mortality rate per 100,000 women is 30.0(5). In Ethiopia, about 31.5 million women of age 15 years and older are estimated to be at risk of developing cervical cancer. Current estimates indicate that every year 6294 women are diagnosed with cervical cancer and 4884 die from the disease (10). Early detection of cancer is vital due to the relationship between stage at diagnosis and survival. Survival rates depend on the stage of

cervical cancer that is diagnosed. When detected at an early stage, the 5-year survival rate for women with invasive cervical cancer is 92%. If the cancer has metastasis to a distant part of the body, the 5-year survival rate going to drop to 17%(11). A study conducted in Nepal showed that the higher proportion of the late diagnosis may have contributed to the high mortality rate of cervical cancer(12).

Cervical cancer is the one with proven strategies and key interventions for early detection, diagnosis, screening and referral of patients suspected of cervical cancer. The most effective and efficient treatment is linked to early detection programs to cure or considerably prolong the life of cancer patients and ensure the best possible quality of life for survivors(13).

The WHO is developing a global strategy towards eliminating cervical cancer as a public health problem, which includes 2030 triple intervention coverage targets also known as (90-70-90) target; 90% of girls fully vaccinated with HPV vaccine by age 15; 70% of women are screened with a high performance test by 35 and 45 age and 90% of women identified with clinical disease receive treatment(14).In Ethiopia, the Nation cancer control plan has put key interventional strategy to meet the goal to reduce incidence and mortality. The strategy aims to promote the prevention and early detection in order to improve diagnosis and treatment. Population based cervical cancer screening, like VIA (visual screening using acetic acid) for all women aged 30-49 every 5years is one of the strategy for early detection of the disease(15).

Hence, we studied magnitude and associated withlate stage at diagnosis of cervical cancer among cervical cancer patients in effort to find evidences based solution for late stage presentation.

1.2 Statement of the problem

Cervical cancer continues to be a major public health problem; mortality and morbidity due to this condition are burden particularly in developing countries, including Ethiopia. The quality of life of cervical cancer patients is compromised in different ways such as sexually, physiologically and emotionally. The economic burden as the result of the disease also high(16, 17).

Most studies done in Africa showed that majority of women who were diagnosed with cervical cancer presented at advanced stage of the disease after the disease is clinically apparent and at their different stage of the cancer that ultimately determine interventional approach and the advanced stage of cervical cancer at diagnosis is correlated with complication, poor treatment outcome and risk of death is also higher(12, 18, 19). Early identification of the disease has substantial implications on cervical carcinogenesis and clinical outcome which offers the best chance to successful treatment. The early detection of the disease can also actually prevent most cervical cancers by finding abnormal cervical cell changes (pre-cancers) so that they can be treated before they have a chance to turn into a cervical cancer(8, 11, 20).

Cervical cancer remains one of the deadliest cancers among women and the situation is particularly devastating in developing countries where a lot of factors interplay making disease management extremely difficult. However, due to lack a personal initiative to attend formal health care facility, symptoms are misinterpreted by health care providers in initial consultation, poor health seeking behavior, have low level of awareness about the disease, lack of health insurance, lack of their own decision regarding their health usually patients visits clinic by which time the cancer lesion is advanced and often difficult and too late to treat and require a long time care(12, 15, 18, 19, 21)

To our best knowledge, no study has been conducted on factors that contribute to late stage at diagnosis in Ethiopia. In addition, previously conducted studies in different countries might have difference between countries and understanding the determinants of stage at diagnosis of cervical cancer will have paramount significance in guiding practical interventional approach in our settings where routine screening of cervical cancer have significant constrain. Therefore, this

study aim to assess determinants of late stage at diagnosis of cervical cancer among cervical cancer patients.

1.3 Rationale of the study

Cervical cancer is considered as a priority for prevention in different countries including in Ethiopia(15, 22).In Ethiopia, majority of cervical cancer patients present at late stage of the disease(7). The stage at presentation is the main factor that determines the prognosis of the disease and survivalof the patient. Late stage cervical cancer has a poor prognosis compared to early stage cervical cancer (23). So identifying the determinants of late stage at diagnosis of cervical cancer guides to developprevention and early detection measures and put in to action through providing specific approach to address theproblem.

Our study will also add up to existing evidences that may inform health care system to make cervical cancer screening and diagnostic services more accessible to women to facilitateearly stage diagnosis and treatment of cervical cancer.

2. Literature Review

2.1 Cervical cancer burden

Globally, in 2018, cervical cancer is the third most common cancer in women with an estimated 569,847 new cases and about 311,365 new deaths (3). Most of these deaths occur in low-income countries. In the world, 2,784.9 million women are at risk of developing cervical cancer and of these 2,240.4 million reside in less developed regions particularly in low- and middle income countries where the burden of the disease remains exceptionally high (1, 24).

In Africa, cervical cancer positions as the second most frequently diagnosed and also the leading cause of death of female cancer with 81,689 deaths every year (20 deaths per 100,000 women)(5). According to WHO's estimation, by 2030, cervical cancer is expected to take the lives of 474,000 women per year and over 95% of these deaths are anticipated to occur in low- and middle-income countries. In addition, in sub-Saharan Africa alone, cervical cancer rates are expected to be doubled (24).

In Ethiopia, about 31.5 million women of age 15 years and older are estimated to be at risk of developing cervical cancer. Current estimates indicate that annually 6294 women are diagnosed with cervical cancer and 4884 pass away from the disease(10).

2.2 Magnitude of late stage diagnosis

Most of the studies done in Africa showed that majority of women diagnosed with cervical cancer presents when the disease is advanced. For instance, study done in Ghana, almost 2/3 (69.7%) of patients with cervical cancer presented at advanced stage of the disease (20). Another study conducted in Uganda also reported that 66% of the women diagnosed at late stage of the cervical cancer (19). In Nepal, about 80.7% of patients with cervical cancer are diagnosed with advanced stage cancer(12). Study conducted in Tanzania also showed that majority of patients with cervical cancer diagnosed with late stage of disease(18). In Iran, the proportion of late stage cervical cancer diagnosis was high (89.09%)(25). Research done in Macedonia reported that of

107 patients interviewed in the study, of them 71.96% patients had been diagnosed with advanced stage disease(26). Study done in Ethiopia also showed that most of cervical cancer patients seek health care at advanced stage of the disease(7). A population based cross sectional study in Ethiopia revealed that 60% cervical cancer patients were diagnosis at late stage of the disease(27). A retrospective cohort study conducted in Ethiopia showed that about 87% of patients with cervical cancer presented at late stage of the disease(28).

2.3 Socio demographic factors

A study done in Iran showed that there is a statically significant association between education status and late stage at diagnosis of cervical cancer cases where Illiterate patients had delayed presentation of the disease compared to those with educational status higher than diploma (25). In Nepal, literacy status of women was found to be independently associated with late stage diagnosis of cervical cancer. Moreover, it was observed that literate women had lower risk being diagnosed late(12). A study conducted in Macedonia also showed that the patients had a higher risk of being diagnosed with advanced stage disease if they had lower levels of education(26).Based on a research done in Morocco, literacy status of women was found to be significantly associated with late in presentation; women who were literate had lower possibility of delay(21).

A research conducted in Uganda revealed that those patients who reported financial difficulty had about five times higher chance of being diagnosed with late stage of disease than among patients who didn't report financial difficulty as a reason for delay to look for health care (19).A study conducted in Iran revealed that socioeconomic condition had significant association with delayed presentation and diagnosis of the disease (29). In Macedonia, patient who had a low monthly income had higher riskof being diagnosed with late stage of cervical cancer(26).A study conducted in Sudan showed that those patients without health insurance had much higher risk to diagnosis of cervical cancer at late stage than those with health insurance(8).A study done in Sudan also showed that those patients residing in rural areas had higher risk of being diagnosed with advanced stage of cervical cancer than those patients residing urban areas (8).

A research done in Morocco showed that, women who were not married were more at risk of being diagnosed at late stage of cervical cancer (30). In Sudan, women of African ethnicity was more probably to be diagnosed at late stage of the disease (8). A study in Ghana reported that patients who presented late tended to be women who had menarche between the ages of 16–25 years(20).

2.3 Risk factors of cervical cancer

A research conducted in Ghana showed that there is a statistically significant association between previous screening history and late presentation of patients with cervical cancer; Women who had not been screened previously for cervical cancer more likely to be present late(20). A study done in Iran also showed that patients who did not have history of Pap smear test had higher probability for delayed diagnosis of cervical cancer. On the other hand, research done in Nepal showed that Pap test was not found to be significantly associated with late diagnosis of cervical cancer(25). In the other hand, research done in Nepal showed that, Pap test were not found significantly associated with late diagnosis of cervical cancer(12). A study done in South Africa showed that those patients who didn't obtain a gynecological examination, which included a cervical smear on presentation was statistical significant with advanced stage of cervical cancer (31). A research conducted in Kenya revealed that patients who didn't frequently obtain gynecological examinations had higher risk of being diagnosed with advanced stage of cervical cancer (32).

A study done in Macedonia revealed that there is a statistically significant association of family history of invasive cervical cancer and diagnosis at advanced stage of cervical cancer; the patients had a higher probability of being diagnosed with advanced stage disease if they had family history of invasive cervical cancer in first degree female relatives(26). A study in Morocco also revealed that, women with a family history of cancer were more at risk to be diagnosed at advanced stage of cervical cancer than those women without family history of cervical cancer (30). Study done in Iran reported that, history of smoking and partner history of smoking (passive smoking) had significant association with late presentation of patients with cervical cancer (25). Moreover, being HIV positive is found to be a potential risk factor for the late stage presentation of patients with cervical cancer(10).

2.4 Patient related factors

Nepal, a study revealed that, of a total of 89(80.9%) patients who presented late at diagnosis; 55(91.7%) had foul smelling vaginal discharge, 19(76%) reported lower abdominal pain and 15(60%) had abnormal vaginal bleeding as their earlier symptoms. Abnormal vaginal bleeding as early symptom was observed as a protective factor for late diagnosis as compared to the foul smelling vaginal discharge. Women were more likely to have an advanced stage of the disease if they delayed to share their symptoms with others. This study also reported that, late diagnosis of cervical cancer was observed among women who first discussed their symptoms with their friends as compared to women who first shared symptom with their husbands(12).

A study conducted in Morocco found abnormal vaginal bleeding as an earlier symptom and also as a protector factor to late stage at diagnosis. Besides, As an earlier symptom, abnormal vaginal bleeding and vaginal discharge were identified as earlier symptoms for 264 (65.8%) and 69 (17.2%) of patients respectively (30). Another study done in Morocco also showed that, women who had other symptoms as their first one other than the bleeding were more at risk of late stage cancer. In addition, health seeking behavior and stage at diagnosis were shown to be influenced by the way patients label their symptoms(21). Plus, one study in Kenya showed that most women diagnosed at an advanced stage of cervical cancer considered symptoms such as abnormal vaginal bleeding, bleeding after sex and post-menopausal bleeding as a sign of infection and not cancer but the differences were not statistically significant. In addition, vaginal discharge was also considered as a sign of infection by most of the patients(32).A research done in Uganda showed that those patients who perceived their symptoms due a serious disease were less likely to be diagnosed at advanced stage of the disease compare to those who perceived their symptoms as not due to a serious illness/cancer (19).

A study done in Tanzania revealed that, among 129 patients who presented with late stage of cervical cancer, 84 (73.0%) of them had lack of personal initiative for early visit to healthcare facility and this was the main factor associated with late stage at presentation(18).

A study done in Morocco showed that those patients who had knowledge of abnormal vaginal bleeding as a symptom were less likely to be diagnosed at late stage of the disease as compared to vaginal discharge and pain. Plus, Knowledge of causes of cervical cancer was found to be a protective factor to late presentation.(21).

A research done in Kenya reported that Knowledge on cervical cancer was low in patients diagnosed with late stage of cervical cancer however, these differences were not statistically significant(32).

In Tanzania, of 202 patients confirmed cervical cancer who participated in the study, among them 74% were attending to traditional health practitioners which were associated to advanced stage of cervical cancer (18).

2.5 Health system related factors

Study conducted in Uganda reported that the delayed identification of the disease and referral by primary health care professionals leads to late cancer stage at diagnosis in the referral facilities. About half of the patients with cancer received pre referral diagnosis of cancer at primary level of health care but their primary health care professionals did not identify the symptoms and diagnose with in the early stage of the disease and symptomatic patients referred with other diagnosis which is unrelated to cancer; the odds of late stage cervical cancer among patients who were told to have cancer during pre-referral diagnosis are 13 times the odds among those told to have non-cancer related diagnoses (19).

A study conducted in Morocco reported that distance from the treatment center were significantly associated with late stage at diagnosis of cervical cancer. Remoteness of the place of first consultation was found to be significantly associated with patients' delay and high risk was observed for patients who were more than 10km away from their first consultation site.(30).

Therefore, considering the socio economic factors, patient factors, risk factors and health are factors this study aims to identify the determinants of late stage at diagnosis of cervical cancer among cervical cancer patients in effort to find evidence based solution for late stage presentation.

Conceptual Framework



Diagnosis

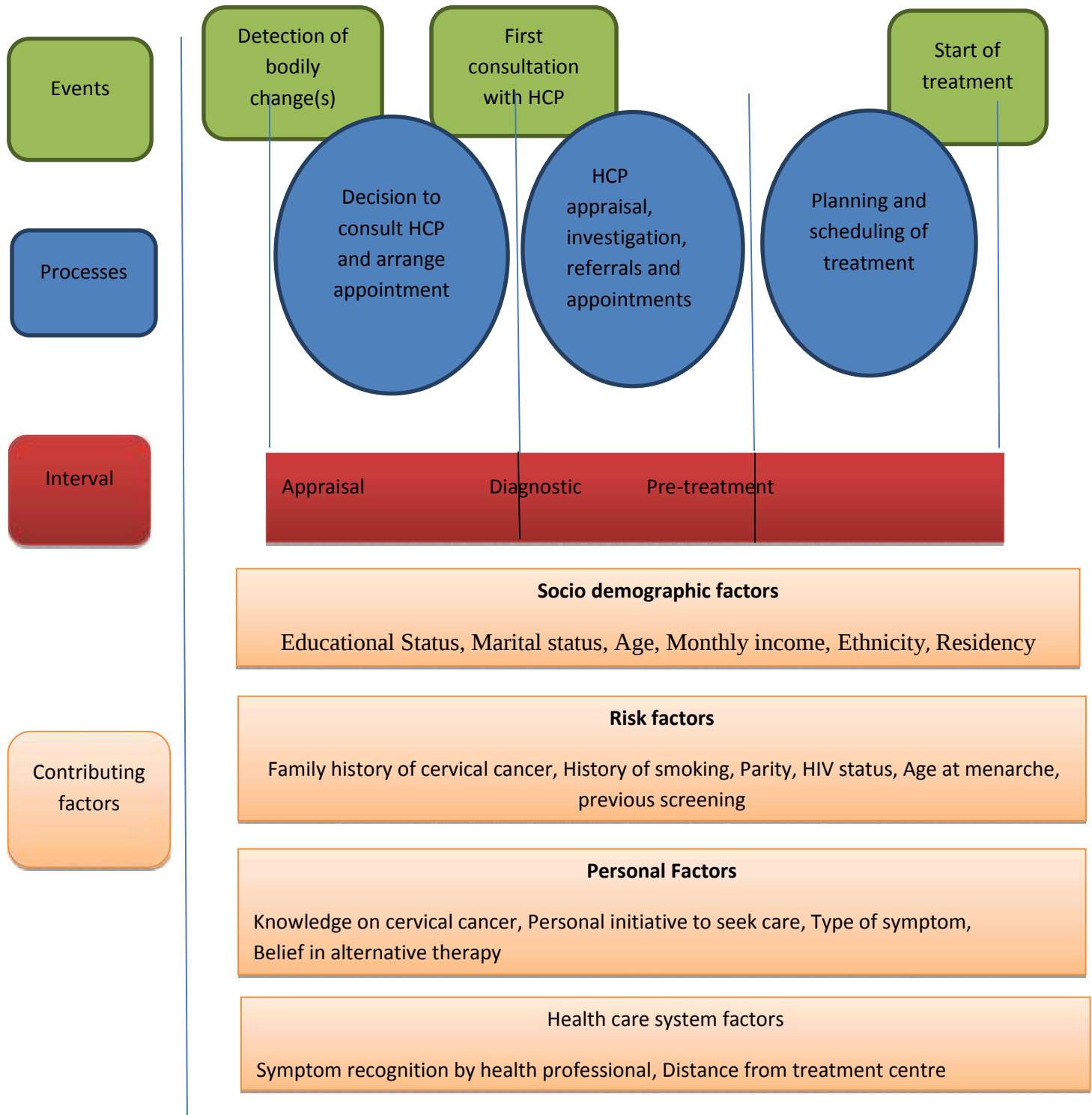


Figure 1: Conceptual framework for late stage at diagnosis of cervical cancer (Source: adopted from

3. Research questions

1. What is the magnitude of late stage at diagnosis of cervical cancer?
2. What are associated factors with late stage at diagnosis of cervical cancer?

4. Objective

4.1 General Objective

To assess the magnitude and factors associated with late stage at diagnosis of cervical cancer among cervical cancer patients at Tikur Anbessa Specialized Hospital (TASH), Addis Ababa, Ethiopia from July 22 to October 30, 2020.

4.2 Specific Objectives

1. To determine the magnitude of late stage at diagnosis of cervical cancer among cervical cancer patients at Tikur Anbessa Specialized Hospital (TASH)
2. To identify the factors associated with late stage at diagnosis of cervical cancer among cervical cancer patients at Tikur Anbessa Specialized Hospital (TASH)

5. Method

5.1. Study area

The study was conducted at Tikur Anbessa Specialized Hospital (TASH), Outpatient Department of Gynecology, Addis Ababa, Ethiopia. The hospital receives patients who are referred from healthcare facilities across the country, as well as patients from Addis Ababa. It is the largest specialized hospital in Ethiopia, with 700 beds, of which 21 belong to Oncology center. There are one cobalt 60 external beam radiation machine, one HDR brachytherapy machine and one CT stimulator in the Oncology center. In TASH Gynecology Department, there are 120 residents and 38 senior gynecologists. In oncology unit, there are 5 oncologists, 22 Nurses, 35 residents, 5 radiotherapists, 3 medical physicists and 1 General practitioner. About 1,800 new cases of confirmed cervical cancer are seen annually and chemotherapy infusions and radiation treatment are given. The most common cancer cases seen in this hospital are breast cancer, cervical cancer, colorectal cancer, ovarian cancer and esophageal cancer (33).

5.2. Study design and period

A facility based quantitative cross sectional study design was employed on cervical cancer patients who were referred to Tikur Anbessa Specialized Hospital, Gynecology Outpatient Department, Addis Ababa. The data was collected from July 20, 2020 to October 30, 2020.

5.3. Population

5.3.1. Source population: All women diagnosed with cervical cancer at Tikur Anbessa Specialized Hospital, Gynecology Outpatient Department.

5.3.2. Study population: All women newly diagnosed with cervical cancer at Tikur Anbessa Specialized Hospital, Gynecology Outpatient Department, during the data collection period.

5.4. Eligibility criteria

5.4.1. Inclusion criteria

All newly diagnosed cervical cancer patients who referred to Tikur Anbessa Specialized Hospital, Outpatient Department of Gynecology over the study period of three months were eligible for this study.

5.4.2. Exclusion criteria

Patients with mental problem and who were critically ill were used as exclusion criteria but we didn't face such cases.

5.5. Sampling

5.5.1. Sample size determination

Sample size for objective 1: Sample size for this objective was calculated by using single population proportion formula using Epi Info 7 statistical software by taking the proportion of late stage diagnosis as 53%(7) from a study conducted at Tikur Anbessa Specialized Hospital (TASH), assuming confidence interval of 95%, margin of error 5%, adding a 10% non-response rate, the total sample size become 425.

Sample size for objective 2: sample size for this objective was calculated by using double population proportion formula by taking factors associated to late stage diagnosis, assuming 95% of confidence interval, 80% power, Ratio of cases to controls 1:1 and using Epi info version 7 statistical software, the results are presented in the table below.

Table 1: Sample size calculation for factors associated with late stage cervical cancer

S.no	Variables	Proportion of outcome among unexposed	Ratio of unexposed to exposed	AOR	CI (%)	Power (%)	Calculated sample size (n)	Reference
1	Knowledge	44.4%	1:1	2	95	80	290	(Wamburu et al.,2016)
2	Previous screening history	70.5%	1:1	2.3	95	80	300	(Dunyo et al., 2018)
3	Education	31%	1:1	2	95	80	304	(Behnamfar and Azadehrah, 2015)

Taking the highest calculated sample size from both objectives, 383, and adding a 10% contingency, the final sample size became 425.

5.5.2. Sampling procedures

According to the one-year record of cervical cancer 1,800 new cases were seen in the Gynecology unit at Tikur Anbessa Specialized Hospital (From HMIS report). Since the duration of the study was three months, the calculated flow within the three months was 450. Therefore, to get the required sample size every consecutive new case of cervical cancer patient who came during data collection period were enrolled in the study.

5.6. Study variable

5.6.1. Dependent variable

- ✓ Late stage at diagnosis of cervical cancer

5.6.2. Independent variables

Socio demographic factors

- ✓ Educational status
- ✓ Marital status
- ✓ Age
- ✓ Monthly income
- ✓ Ethnicity
- ✓ Residency
- ✓ Health insurance

Risk factors

- ✓ Family history of cervical cancer
- ✓ Age at menarche
- ✓ HIV status
- ✓ Previous screening history
- ✓ History of smoking
- ✓ Parity

Personal factors

- ✓ Knowledge on cervical cancer
- ✓ Personal Initiative to seek care
- ✓ Type of symptom
- ✓ Belief in alternative therapy

Health Care factors

- ✓ Symptom recognition by health professional
- ✓ Distance from the treatment center
- ✓ Level of health facility

- ✓ Number of visit to health facility

5.7. Operational definitions

Early diagnosis: Patients diagnosed with cervical cancer from stage IA-IIA(34, 35).

Late diagnosis: Patients diagnosed with cervical cancer from stage IIB-IVB(34, 35).

Date of first symptom: The date or estimated time in the week, month or year when the patient first felt a bodily change requiring discussion with a healthcare professional and/or with another person with the intention of gaining understanding of the symptoms and/ or how to deal with them(36).

Appraisal delay: The time period from detection of unexplained symptom to the time contacting first medical person and when it takes greater than one month (37).

Diagnostic delay: The time period from visiting first medical contact to the date of diagnosis and when it takes greater than one month(38).

Date of diagnosis: Date when examination for clinical diagnosis and staging performed(19).

5.8 Data collection tool and procedures

A structured questionnaire was developed from multiple peer-reviewed literature source(18, 19). The questionnaire was developed in English and translated in to Amharic version for better understanding by the study participants. There were two midwives and a nurse involved in the data collection and supervision. The data was collected from newly diagnosed cervical cancer referral patients, using an interviewer administered structured questionnaire in Outpatient Department of Gynecology at Tikur Anbessa Specialized Hospital by data collectors and the stage at diagnosis of cervical cancer was also determined through bimanual pelvic examination according to International Federation of Gynecology and Obstetrics (FIGO). The data collectors reviewed the medical record and extracted all relevant information which is needed from medical record of the patients.

5.9. Data analysis procedures

The Data were entered and coded in to Epi-data version 4.64 and exported to Stata version 14 for cleaning, recoding, checking for the missing value and analysis. Descriptive analysis was computed to summarize the socio-demographic and clinical characteristics of the client.

The knowledge of cervical cancer was assessed using knowledge related questions that had five section with total of 25 point scale. The questions had 18 correct answers and 7 distractor questions. Each correct answer was given 1 point and wrong answer 0 point. There was one question on awareness, six on risk factor, three on cause, seven on prevention and three on cure of cervical cancer. First, respondents were asked each of the knowledge questions to capture their spontaneous response. Then for those respondents who couldn't respond unprompted they were further prompted. The simultaneous and prompted responses were added together to develop knowledge score. Those participants who scored average and above on knowledge score were classified as having good knowledge and those who scored below average were classified as having poor knowledge(39).

Binary logistic regression was done and for those variables with p-value less than 0.25 on binary logistic regression the existence of multicollinearity was checked and for those correlation result greater than 0.5 one of the variables was dropped. Multivariable logistic regression was used to identify the factors associated to late stage at diagnosis of cervical cancer. Twelve variables were included in the multivariable logistic regression analysis and those with a p-value less to 0.05 at 95%CI in the multivariable logistic regression were considered as having a statically significant association with the outcome variable, late stage at diagnosis. The outcome variable late stage at diagnosis was determined using the International Federation of Gynecology and Obstetrics (FIGO) staging system. For this analysis, stage at diagnosis was grouped as early and late.

5.10. Data quality assurance

To ensure data quality half day training was given to the data collectors prior to the data collection including the objective of the study, criteria for inclusion, consent procedures, contents of the questionnaire and data collection techniques of the study by the principal investigator. The data was checked for completeness, clarity, accuracy and consistency. There was a continuous supervision to control the data collection procedure by the supervisor and close follow up of the whole data collection process by principal investigator. Pretesting of the questionnaire was done on around 10% of the total sample size (38 participants) in Tikur Anbessa Specialized Hospital before the actual data collection problems with clarity and relevance in the measurement during the pre-test was addressed immediately and some of the questions are modified accordingly.

5.11 Ethical consideration

Ethical approval was obtained from Research Ethical Committee (REC) of School of Public Health, College of Health Sciences of Addis Ababa University. After receiving ethical clearance, support letter was written to Gynecology Department of Tikur Anbessa Specialized Hospital. Permission letter to collect the data was obtained from Gynecology Department of Tikur Anbessa Specialized Hospital. The data collectors were explained to the study participants about the objective, benefit and harms, and their right to withdraw from the study at any time if they don't want to be part of it. A written informed consent was obtained from those participants who were willing to participate in the study. The personal information was kept confidentially and used only for the research purpose.

6. Results

A total of 425 confirmed cervical cancer patients were found during the study period, of which 392 of them participated and completed the interview, giving a response rate of 92.2%.

6.1 Socio- demographic characteristics of participants

The mean age of the respondent's was 58 ± 10 years. About 257(65.56%) were married. More than half (56.63 %) of the patients came from rural area. More than half 229 (58.42 %) of the patients had no formal education. Of the patients with formal education, 54.6 % had primary level, 26.38 % had secondary level, 8.6% technical and vocational, and 10.4% had higher level. About 154(39.29%) of the participants were house wife and 121(47%) of their husbands were farmer (Table 2). Of the total study participants, 64(16.33%) spent less than four hours, 83(21.17%) four to eight hours, 52(13.27%) nine to 24 hours and 193(49.23%)more than one day by any available means of transport to reach to the study hospital(Table 2).

Table 2: Socio-demographic characteristics of cervical cancer patients in Tikur Anbessa Specialized Hospital, Gynecology Outpatient Department, Addis Ababa, Ethiopia, 2020

Variables	Frequency (n=392)	Percentage (%)
Age		
30–44	62	15.82
45–59	217	55.36
≥60	113	28.83
Marital Status		

Married	257	65.56
Widowed	72	18.37
Separated	54	13.78
Never married	9	2.30
Religion		
Orthodox	200	51.02
Muslim	110	28.06
Protestant	67	17.09
Catholic	15	3.83
Ethnicity		
Amhara	151	36.48
Oromo	53	38.52
Tigray	26	13.52
Guraga	19	6.63
Others*		4.85
Residency		
Urban	222	43.37
Rural		56.63
Educational status		
No formal education	229	58.42
Primary	89	20.91
Secondary	43	10.96
Technical	14	3.57
Higher	17	4.33
Health insurance		
Yes	119	30.36
No	273	69.64
Monthly income in ETB		
Low (<1000)	183	46.68
Middle (1000-2000)	94	23.98
High (> 2000)	115	29.34

*Others include: Wolayeta, Hadiya

6.2 Magnitude of stage at diagnosis of cervical cancer

From the total study participants, 211(53.83%, 95% CI: 48.75%, 58.84%) were diagnosed with advanced stage of cervical cancer and the rest of the participants 181 (46.17%) were at early stage of cervical cancer at diagnosis (Figure 2).

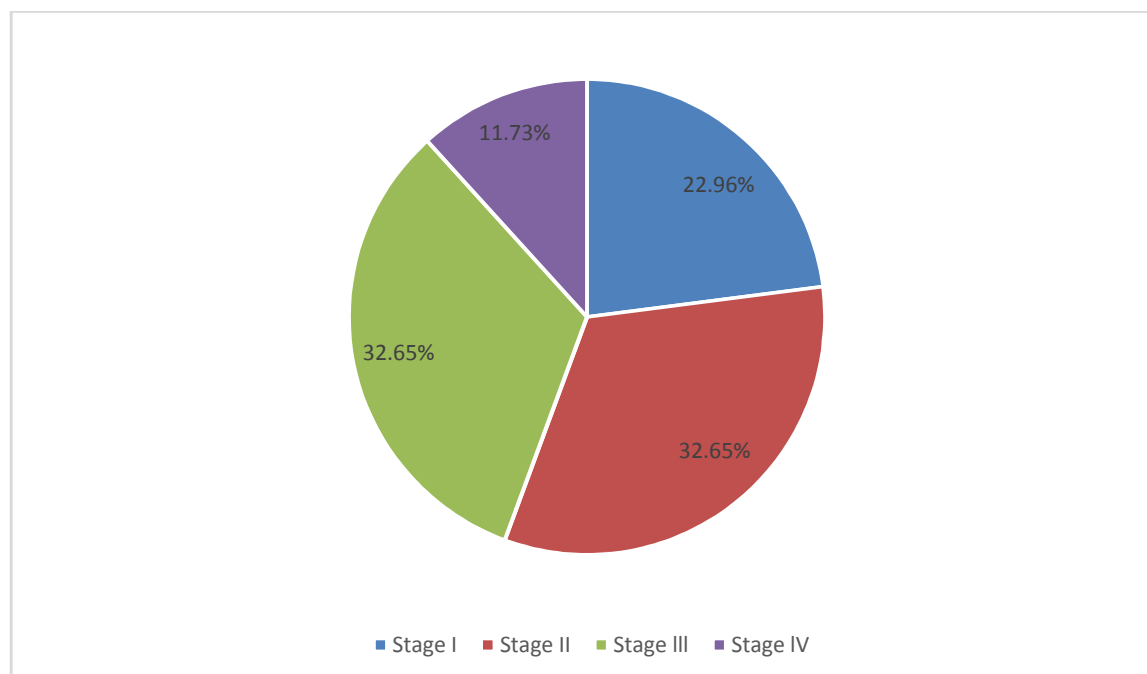


Figure 1: Magnitude of late diagnosis of cervical cancer in Tikur Anbessa Specialized Hospital, Gynecology Outpatient Department Addis Ababa, Ethiopia, 2020

6.3 Knowledge of risk factor, cause, symptom, prevention and treatment for cervical cancer

Of the total study participants 174 (44.39%) have heard about cervical cancer and from those participants who had ever heard about cervical cancer 118(67.82%) of them heard from media, 30(17.24%) of them heard from health professionals, 43(24.71%) of them heard from friends, 20(11.49%) of them heard from family and 5(2.87%) of them heard from school. Of them, 19.90% had good knowledge and the rest of the participants 80.10% had poor knowledge. HPV was mentioned as cause of cervical cancer only by one participant without prompt. Only 9(5.17%) of the study participants mentioned early onset of sexual intercourse as a risk factor of cervical cancer without being prompted and about 36(21.82%) mentioned after they were prompted (Table 3).

Table 3: Knowledge of risk factor, cause, symptom, prevention and treatment for cervical cancer in Tikur Anbessa Specialized Hospital, Gynecology Outpatient Department, Addis Ababa, Ethiopia, 2020

Prompted

	Unprompted		Yes		No	
	frequency	percentage	Frequency	Percentage	Frequency	Percentage
Heard about cervical cancer (n=392)			174	44.39	218	55.61
Risk factor						
Early sexual intercourse	9	5.17	36	21.82	129	79.18
Family history	12	6.90	49	30.25	113	69.75
Multiple sexual partner	15	8.62	37	23.27	122	76.73
Sex during menstruation	3	1.72	26	15.20	145	89.80
Smoking cigarette	8	4.60	17	10.24	149	89.76
Using family planning	18	10.34	23	14.74	133	85.26
Cause						
HPV	1	0.57	14	8.09	159	91.91
Contagious	0	0	29	16.67	145	83.33
Inherited	2	1.15	48	27.91	124	72.09
Symptom						
Vaginal bleeding	86	49.53	30	34.09	58	65.91
Headache	5	2.87	18	10.65	151	89.35
Pelvic pain	33	18.97	37	26.24	104	73.76
Foul smelling vaginal discharge	48	27.59	31	24.60	95	75.40
Post coital bleeding	24	13.79	33	22.00	117	78.00
Preventable			89	48.85	85	51.15
Prevention method						
Avoid MSP	5	5.62	23	27.38	61	72.62
Avoid early onset of sex	4	4.49	17	20.00	68	80.00
Vaccination	32	35.96	36	63.16	21	36.84
FGM	0	0	1	1.12	88	98.88
Screening	32	35.96	35	61.40	22	38.60
Stop smoking cigarette	3	3.37	13	15.12	73	84.88
Curable			136	78.16	38	21.84
Treatment method						
Early seeking treatment	100	73.53	31	22.79	5	13.89
Traditional medicine	1	0.74	12	8.89	123	91.11
Cured even if delayed	1	0.74	43	31.85	92	68.15

6.4 Reasons of delay for late stage

Of the total respondents 187(47.7%) detected their symptom but did not visit a health facility within one month and 238(60.71%) were diagnosed after one month of their first visit of a health professional. Fourteen (3.57%) respondents were late because they thought would relief by itself,

one went to traditional healer and another did not have money to visit health facility. Forty-one (10.46%) respondents had a delay to come to referral center after their diagnosis (Table 4).

Table 3: Reasons of delay for late stage diagnosis in Tikur Anbessa Specialized Hospital, Gynecology Outpatient Department, Addis Ababa, Ethiopia, 2020

Variables	Frequency (n=392)	Percentage(%)
Appraisal delay	187	47.70
Reasons for delay		
Lack of money	18	9.63
Traditional medicine	15	8.02
Difficulty of decision	7	3.74
No nearby health facility	8	4.28
Thought it'll resolve by itself	76	49.64
Lack of awareness about CC	73	38.04
Fear of Covid 19	24	12.83
Diagnostic delay	238	60.71
Reasons for delay		
Waiting time reception	24	10.80
Unable to examine	32	13.45
Incorrect diagnosis	120	50.42
Delayed in diagnosis	46	19.33
Others*	16	4.90
	41	10.46
Tertiary delay		
Reasons for delay		
Lack of money	23	54.76
Went to traditional healer	1	2.38
Difficulty for decision	7	16.67
Distance to the facility	5	11.90
Fear of Covid 19	10	23.81
Others**	1	0.26

*Others include: thought it'll resolve by itself, lack of money, went to traditional healer

**Others include: thought it'll resolve by itself

6.5 Clinical and obstetric history of cervical cancer patients

About 63.78% of the study participants shared their symptom with someone immediately. From those who shared their symptom, 123(49.2%) shared their symptom to husbands, 15(6%) shared to their friends, 83(33.2%) to their family and 29(11.6%) to health professionals. Vaginal bleeding was the symptom that made 278(70.92%) respondents seek medical attention (Table 5).

Table 4: Clinical and obstetric history of cervical cancer patients in Tikur Anbessa Specialized Hospital, Gynecology Outpatient Department, Addis Ababa, Ethiopia, 2020

Variables	Frequency (n=392)	Percentage(%)
Pre referral diagnosis		
Cancer related	375	95.66
Non cancer related	1	0.26
Not told	16	4.08
Gynecologic examination		
Yes	62	15.86
No	329	84.14
Number of pre referral visit		
Below three	62	15.82
Three and above	330	84.18
Type of symptom		
Vaginal bleeding	278	70.92
Foul smelling vaginal discharge	77	19.64
Pelvic pain	45	11.48
Post coital bleeding	32	8.16
Shared symptom immediately		
Yes	250	63.78
No	142	36.22
Cervical cancer screening history		
	40	10.20
	352	89.80
Pap smear done		
Before three years	10	25
Three and above years	30	75
Family history of cervical cancer		
Yes	54	13.78
No	338	86.22
Age at menarche (n=377)*		
Early (<12)	14	3.71
Normal (12-15)	260	68.97
Late (>15)	103	27.32
Parity		
0-4	127	32.40
5-9	247	63.01
>10	18	4.59
Smoke Cigarette		
Yes	19	4.85
No	373	95.15
HIV status		
Positive	51	16.56
Negative	257	83.44

*15(3.83%): Missing data

6.6 Socio Demographic, knowledge and other factors associated with late stage of cervical cancer

In binary logistic regression analysis, those factors with p value 0.25, occupational status of the patient, respondent's educational status, Knowledge of cervical cancer, monthly income, Residency, appraisal delay, gynaecology examination in initial consultation, vaginal bleeding and post coital bleeding were significantly associated with late stage diagnosis of cervical cancer and included in multiple logistic regression.

The multivariable logistic regression showed that the odds of presenting at late stage cervical cancer among those patients who had poor knowledge were two times higher AOR=2.38 [95%CI: 1.03, 5.11] compared to who had good knowledge of cervical cancer. Those clients who were residing in rural areas were about four times more likely AOR= 3.41 [95%CI: 1.69, 6.88] to be diagnosed at late stage of cervical cancer compared to those who were residing in urban. In addition, study participants who shared their symptom with someone late were two times more likely to be diagnosed at late stage of cervical cancer AOR=2.03[95%CI: 1.03, 3.99] compared to those who shared them immediately (Table 6).

Table 5: Logistic regression model for factors associated with late stage at diagnosis in Tikur Anbessa Specialized Hospital, Gynecology Outpatient Department, Addis Ababa, Ethiopia, 2020

Variables	Cervical cancer stage		COR(95% CI)	AOR(95% CI)
	Early stage Number (%)	Late stage Number (%)		
Residency				
Urban	105(58.01)	65(30.81)	1	1
Rural	76(41.99)	146(69.19)	3.1 (2.04,4.70)	3.41(1.69,6.88)*
School attended				
Yes	96(53.59)	66(31.28)	1	1
No	84(46.41)	145(68.72)	2.53(1.68,3.83)	0.66(0.29,1.49)
Occupational Status				
Don't have their own income	62(34.25)	92(43.60)	1.48(0.98,2.23)	0.97(0.53,1.80)
Have their own income	119(65.75)	119(56.40)	1	1
Monthly income				
Low (<1000)	79(43.65)	104(49.29)	1.77(1.10,2.84)	0.72(0.33,1.58)
Middle (1000-2000)	36(19.89)	58(27.49)	2.17	1.19(0.52,2.77)
High (> 2000)	66(36.46)	49(23.22)	(1.24,3.78)	1
			1	
Knowledge of cervical cancer				
Poor	127(70.17)	187(88.63)	3.3(1.95,5.63)	2.38(1.03,5.11)*
Good	54(29.83)	24(11.37)	1	1

Appraisal delay				
Yes	63(34.81)	124(58.77)	2.67(1.78,4.03)	0.56(0.3,1.06)
No	118(65.19)	87(41.23)	1	1
Gynecology examination in initial consultation				
Yes	122(67.4)	130(61.61)	1	1
No	59(32.6)	81(38.39)	1.29(0.85,1.95)	0.68(0.36,1.29)
Type of symptom				
Vaginal bleeding				
Yes	138(76.24)	140(66.35)	1	1
No	43(23.76)	71(33.65)	1.63(1.04,2.54)	1.41(0.74,2.76)
Post coital bleeding				
Yes	11(6.08)	21(9.95)	1	1
No	170(93.92)	190(90.05)	0.59(0.27,1.25)	0.38(0.13,1.08)
Shared symptom immediately				
Yes	136(75.14)	114(54.03)	1	1
No	45(24.86)	97(45.97)	2.57(1.67,3.96)	2.03(1.03,3.99)*

* Statistically significant association (P <0.05)

7. Discussion

Our study aimed to estimate the magnitude late stage diagnosis of cervical cancer and factors associated with late stage diagnosis using facility-based cross-sectional study design. We found that 211(53.83%) of patients with cervical cancer attending at Tikur Anbessa Specialized Hospital, Outpatient Department of Gynecology and Obstetrics during our study period were diagnosed at late stage of cervical cancer. Place of residence, knowledge about cervical cancer and sharing cervical cancer symptoms with someone late were found to be significantly associated with late stage at diagnosis.

The magnitude of late stage at diagnosis of cervical cancer among women in our study is lower than the findings of the study conducted in previous studies from Ghana (65.9%)(20), Uganda (61%)(19), Tanzania (63.9%)(18) and Ethiopia (60.4%)(27). The discrepancy might be due to that in our study, only newly diagnosed cervical cancer patients were recruited in the study. However, in the studies conducted in the previously stated countries, all women who were diagnosed and treated for cervical cancer were enrolled so that, due to this time gap between first presentation and the date of pathology result the patient might face tertiary delay.

This study showed that about 45% of cervical cancer patients had heard about cervical cancer prior to their diagnosis. A study conducted in Kenya also showed that 55% of cervical cancer patients had heard about cervical cancer (32). Out of those who reported that they have heard about cervical cancer only 14.8% had good knowledge. This reflects, even if majority of patients have heard about cervical cancer, they don't have sufficient knowledge regarding the disease.

In the current study, the odds of late stage cervical cancer were two times higher among women who had poor knowledge. This reflects the knowledge of the patients about cervical cancer might have substantial. Study done in Morocco revealed that those patients who had knowledge of abnormal vaginal bleeding as a symptom were less likely to be diagnosed at late stage of the disease as compared to vaginal discharge and pain. Plus, Knowledge of causes of cervical cancer was found to be a protective factor to late presentation. However, this study assessed the knowledge items in each domain individually (21). In contrast, study conducted in Kenya revealed that knowledge on cervical cancer was low in women diagnosed with cervical cancer however, were not statistically significant with advanced stage of cervical cancer. The study which was conducted in Kenya on the other hand showed that although the overall knowledge was not associated with stage of diagnosis, the items used to measure knowledge of cervical cancer such as patient's ability to cite HPV as a cause of cervical cancer and cause of vaginal discharge was attributed to infection were significantly associated with late stage of diagnosis (32). This discrepancy might be due to the fact that the study done in Kenya assessed knowledge of cervical cancer using limited number of questions focusing on risk factors and causes of cervical cancer. Nevertheless, our study used a total of twenty five to comprehensively assess knowledge, five sections with three and more questions for each part to determine knowledge of cervical cancer patients.

Our study revealed that women residing in rural areas had three to four times higher chance of being diagnosed late than those residing in urban areas. This is probably due to lack of access to health care service (40, 41). Our data showed, about 59% of patients living in rural areas took more than one day to reach to the study hospital by any means of transportation. Our finding is consistent with the study conducted in Morocco and Sudan which showed that rural residence was associated with increased odds of diagnosis at advanced stage (8, 30). In contrast, a study conducted in Nepal and Tanzania showed even though most of the patients come from rural area,

rural residence did not associate with late stage diagnosis of cervical cancer, it might be due to small sample size in previously mentioned studies.

In a study done in Nepal those clients who shared their problem with someone late were four times more likely to be diagnosed late (12). Similarly, our study found that women who didn't share their symptom immediately after recognising the symptoms were two times more likely to be diagnosed at late stage of cervical cancer than those women who shared their symptoms immediately. This result shows that family members, friends or health professionals remain important influencers of decision to seek treatment from the right place and at the right time. Consistent with this finding, evidences show that in low and middle-income countries, women power to make decision regarding to their own reproductive health is restricted due to various socio-economic and cultural factors (42).

8. Strength and limitation of the study

8.1 Strength

The study subjects were recruited prospectively who was newly diagnosed for cervical cancer that minimizes recall biases.

8.2 Limitation

Facility based study may not show characteristics of cervical cancer patients who haven't visited the study facility. Additionally, types of tumour were not included.

9. Conclusion

The current study reported more than half of the study participating patients were diagnosis at late stage of cervical cancer. Poor knowledge of cervical cancer, residing in rural areas and sharing symptoms with someone late were associated with late stage of cervical cancer. Although most of the participants are aware of cervical cancer, they have unsatisfactory knowledge on risk factors, causes, symptoms, prevention and treatment of cervical cancer.

10. Recommendation

Based on the current study findings, the following recommendations were made to different parties to control and prevent cervical cancer in Ethiopia:

To Policy makers

To these end, strategies are needed to improve the public knowledge on specific raise public awareness about risk factors, symptoms and prevention of cervical cancer in more comprehensible way to bring impactful knowledge in the prevention and control of cervical cancer. Moreover, in resource limited countries, it is advisable for the government to work together with relevant private and non- governmental organizations that are working on comprehensive maternal health in order to raise awareness through public health campaigns.

To health care provider

The key to cervical cancer control and prevention is providing accessible cervical cancer diagnostic and treatment service to help women at early stage of the disease. Empowering the health care service as a primary health centre to provide health education for women on early detection methods and primary screening service using point of care diagnostics will be an impactful action towards controlling and preventing cervical cancer. Linking the primary health

care providers with the already existing local health extension workers to address women at home and in rural areas by preparing brochures in understandable language of the community and will further strengthen the control and prevention of the cervical cancer.

To researchers

The current study provides most of base line and updated first-hand information regarding late cervical cancer diagnosis. Yet, issues remain unaddressed including types of tumour.

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Annexes

Annex I: Data collection tool (English version)

Information sheet

Hello. My name is _____.I am here on behalf of Wintana fitiwe, student of public health at Addis Ababa University. She is conducting a research to assess the determinants of late stage cervical cancer at Tikur Anbessa Specialized Hospital, Gynecology Outpatient Department in Addis Ababa, Ethiopia. The information that I will collect will help to identify the problem in order to find evidence base solution. Now you are selected for the study. Before you decide

whether to participate or not in this study, the objective of the study, any risks, benefits, procedure and what is expected from you will be explained for you.

Objective of the study: the study will assess the magnitude and associated factors to late stage at diagnosis of cervical cancer

Procedure: The study administered through a face-to-face interview with the data collector. After signing the consent form, the data collector will then ask you the relevant questions using a structured questionnaire and your responses will be recorded on the questionnaire. The interview will take about 15-20 minutes.

Benefit of the study: There is no direct benefit to the participants but the result of the study will provide important information on addressing the problem to go through evidence based solution.

Risk (harm) of the study: There is no harm in participating in this study but part of your time average of 20 minutes will be taken to answer the questions.

Rights of participants: You are completely free not to take part in this study. If you decide that you do not want to be part of the study, this will not be held against you and you will not be disadvantaged in any way. You are also free to withdraw from the study at any time if you feel that you can't continue. You can ask any question which is vague for you.

Confidentiality: All information you give me will be surely confidential and will be kept safe. Your name should not appear anywhere on the questionnaire to ensure anonymity. Only the principal investigator will know the details and will discard it after completing analysis.

Signature of interviewer: ----- Date: -----/-----/-----

1. RESPONDENT AGREES TO BE INTERVIEWED ☐ interview

2. RESPONDENT DOES NOT AGREE TO BE INTERVIEWED ☐ end

For more information and questions here is the contact address of investigator:

Name: Wintana Fitiwe

Tel: +251910934655

E-mail: lilifitiwe@gmail.com

Informed consent

I am informed on study to be conducted by Masters Student in AAU, College of Health Sciences Department of Public Health on magnitude and determinants of late stage at diagnosis of cervical cancer among cervical cancer patients at Tikur Anbessa Specialized Hospital. The objective, benefits, harms, procedures and confidentiality of the study has been read and explained to me in the language I understand and also the interview will take 15- 20 minutes. I further understand

that, taking part in this study and withdraw from participating in any time without having reason is purely voluntary. I agree to participate in this study.

Participant: Sign (signature or thumb print).....Date.....

Thank you!

Questionnaire

Identification (filled from medical records) Hospital registration

SN	Description	Value
1	Date of first visit atGynecology department of TASH	Day..... Month.....

		Year.....
2	Date of referral	Day..... Month..... Year.....
3	Stage of cervical cancer at referral	
4	Current stage of diagnosis	

Part 1: Socio demographic characteristics of the participants

Code	Question	Alternative	Skip
101	In what month and year were you born?	Month Don't know	

		Year	
		Don't know	
102	How old were you at last birthday?	Age in completed year-----	
103	What is your current marital status?	1. Married 2.Never married / Single 3.Divorced/ Separated 4. Widowed	
104	What is your religion?	1. Orthodox Christian 2. Catholic 3. Protestant 4. Muslim 5. Other-----	
105	What is your Ethnicity?	1. Amahra 2. Oromia 3. Tigray 4. Gurage 5. Others	
106	Where is your usual place of residence?	1.Urban 2.Rular	
107	Have you ever attended school?	1.Yes 2.No _____	Go to Q. 109

108	What is the highest level of school you have attended?	1. Primary 2. Secondary 3. Technical/ Vocational 4. Higher	
109	Did your husband ever attend school?	1.Yes 2.No _____	Go to Q. 111
110	What was the highest level of school he attended?	1. Primary 2. Secondary 3. Technical/ Vocational 4. Higher	
111	What is your occupation? That is, What kind of work do you mainly do?	1. House wife 2. Government employee 3. Private employee 4. Farmer 5. Daily labourer 6. Merchant 7. Student 8. Others	
112	What is your husband's occupation? That is, What kind of work do you mainly do?	1. Government employee 2. Private employee 3. Farmer	

		4. Daily labourer 5. Merchant 6. Student 7. Others	
113	What is your monthly total house hold income?	ETB	
114	How many hours/ days it takes to come to this hospital by available means from your home?	Hours..... Days	
115	Are you covered by any health insurance?	1.Yes 2. No	
116	How many live births have you had?		

Part 2. Knowledge of study participants on cervical cancer

Code	Question	Alternatives	Skip
201	Have you previously heard about cervical cancer?	1. Yes 2.No _____	Go to Q.203
202	From where did you hear about cervical cancer for the last time?	1. Media (Television, Radio, Magazine, Brochures) 2. Health professional 3. School 4. Family 5. Friends 6. Other, specify.....	

203. What are the risk factors of cervical cancer?

SN	Risk factors	Unprompted	Prompted	
			Yes	No
1	Early onset of sexual intercourse			
2	Family history of cervical cancer			
3	Having sex with many different men			
4	Having sex with a man when a woman is in her menstrual period			
5	Smoking cigarette			
6	Using family planning			

204. What are the causes of cervical cancer?

SN	Causes			
		Unprompted	prompted	
		Yes	Yes	No
1	Getting infected with virus (Human Papilloma virus) from a man			
2	It is contagious; you get it when you get near to a person with it			
3	It is inherited; you get it if your mother or aunt had it			

205. What are the symptoms of cervical cancer?

SN	Symptoms			
		Unprompted	Prompted	
		Yes	Yes	No
1	Vaginal bleeding			
2	Headache			
3	Pelvic or back pain			
4	Foul smelling vaginal discharge			
5	Post coital bleeding			

206. is cervical cancer preventable disease?

1. Yes

2. No

3. I don't know

207. How can we prevent cervical cancer?

SN	Prevention			
		Unprompted	prompted	
		Yes	Yes	No
1	Avoid multiple sexual partners			
2	Avoid early onset sexual intercourse			
3	Through vaccination			
4	Female genital mutilation			
5	Through screening service			
6	Quit smoking			

208. Is cervical cancer curable (treatable)?

1. Yes

2. No

3. I don't know

209. How cervical cancer be curable?

SN	How cervical cancer be curable?	Unprompted	prompted	
		Yes	Yes	No
1	seeking treatment at early stage make cervical cancer			
2	Cancer of cervix is curable only with traditional medicine			
3	Cancer of cervix is curable in the hospital even if it is diagnosed late			

Part 3- Information on health seeking behavior of the patient

Code	Question	Alternatives	Skip
301	When did you first notice signs or symptoms of the current condition?	Year.....month date ...	
302	When did you consult a health professional for the current complaint for the first time?	Year.....month date ...	
303	Is there time lag between symptom recognition and consultation?	1.Yes 2. No _____	Go to Q.305
304	What are the reasons?	1. Lack of cash money at that time 2. Sought traditional healer 3. Difficulty to make decision 4. I thought it will relief by itself 5. There is no nearby health facility 6. Lack of awareness about CC symptoms 7.Fear of COVID 19 8.Others (specify).....	
305	Is there time lag between consultation and diagnosis?	1. Yes 2. No _____	Go to Q.306

306	What are the reasons?	1.Waiting time at reception	
-----	-----------------------	-----------------------------	--

		2. Incorrect diagnosis 3. Unable to examine the patient 4. Result delayance 5. Others	
307	Is there time lag between diagnosis and referral?	1. Yes 2. No	
308	What are the reasons?	1. Lack of cash money at that time 2. I thought it will not cure 3.Sought traditional healer 4.Difficulty to make decision 5. There is no nearby health facility 6. Lack of awareness about CC symptoms 7.Fear of CVID 19 8.Others (specify).....	

401	What problem had they diagnosed for your current symptoms in the HF you consulted before being referred to this hospital?	1.Non-cancer related 2. Cancer related 3. Not told	
402	Have they performed Gynecological examinations in initial consultation?	1. Yes 2. No	
403	How many times did you visit the HF for the same complaint before being referred to this hospital?		
404	What was the initial symptom that made you feel that something is wrong?	1.vaginal bleeding 2. Foul smelling vaginal discharge 3.Lower abdominal pain 4. Post coital bleeding	
405	Did you immediately shared the Problem?	1.Yes 2.No	Go to Q. 407
406	After feeling something is wrong to whom you shared the problem?	1.Husband 2.Friends 3.Family members 4.Health professional	
407	Where you did 1 st contacted for help?	1.Health center 2.Hospital 3.Clinic 4.Traditional healer	
408	Do you have cervical screening history previously?	1.Yes 2.No	Go to Q.410
409	Have you ever done	1. During last 3years	

	pap smear?	2. More than 3 years 3. Never	
410	Was there family history of cervical cancer?	1. Yes 2. No	
411	When was the first time you have menarche?	-----	
412	Do you have history of smoking?	1.Yes 2.No	
413	Have you ever been tested for HIV?	1.Yes 2.No	Go to Q.414
414	HIV status	1.Postive 2.Negative	

ምስጢራዊነት፡ -

ለእኔ የሚጠቅሙ ጃዎች ህልበጥ በቅምጠር የሚበቁሰውን በተጨማሪም ለአስተማሪና ደህንነት ተጠባብቀው ማረጋገጥ ይቻላል፡፡

ደህንነት ምስጢራዊነት ጥበቃ ለሰጠው ምስጢራዊነት ለመቆየት የሚችል መሆኑን ማረጋገጥ ይቻላል፡፡

ዋነኛው ጥናት ለጥናት ተቋማት ማረጋገጥ የሚችል መሆኑን ማረጋገጥ ይቻላል፡፡

በዚህ ጥናት ላይ ለመሳተፍ ይቻላል፡፡

1. አይ (አመለካከት መለኪያ)
2. አዎ (ወደስምንት ትኩረት ይሰጣል)

የስምምነት ቅጽ

የጥናቱ ዓላማ ጥቅም ስራዎች ጉዳዮች፣ ሐይቶችና ማህተሞች ትብብር ባንቋንቋተነ ቦልኝተረድቻለሁ፡፡

በተጨማሪም የጥናቱ መሳተፍ ስራዎች ከጥናቱ በአስፈላጊ ንብረት መሆናቸውን በመጠቀም እኔ ፈቃድኝን ትላይይ ተመረተ መሆኑን ተረድቻለሁ እንዲሁም የፍቃድ ሰነድ ለማግኘት በጥቅም ስራዎች 15 እስከ 20 ደቂቃ ለፈጽሞ ለተረድቻለሁኝ፡፡

በዚህ ጥናት ትላይይ መሳተፍ ተስማምቻለሁ፡፡

ተሳታፊ፡ ፊርማ (ፊርማዎን ማስቀመጥ) _____ ቀን _____

ለበለጠ ጥያቄዎች ለፊርማዎ ስራዎች ከፈለጉ የዚህ ጥናት ባለቤት በመሆን ተለወጥረው ማግኘት ይቻላል፡፡

ስም፡ ዊንታና ፍትዊ

ስ.ቁጥር፡ +251910934655

ኢሜል፡ lilifitiwe@gmail.com

ለቀናት በብርባሪ መሆኑን መረግናለሁ፡፡

Questionnaire

ክፍል አንድ፡ ማህበራዊ እና የሥነ - ህዝብ ፎካል ጥናቶች			
ጥያቄ መለያ	ጥያቄዎች	ምላሽ	ይዘለለት
101	በስንተኛው ወር እና አመት ተወለዱ?	ወር _____ አላወቁዎም አመት _____ አላወቁዎም	
102	ያለፈው ልደትዎን ሲያከብሩ እድሜዎስን ትነ በር?	በአመት ይኖርኩ _____	
103	ወቅታዊ የጋብቻ ህጻን ታምሞ ይመስላል?	1. ያገባች 2. ያላገባች 3. የተፋታች 4. የትዳር አጋራን በጥቅያ ጣሹ	
104	ሀይማኖትዎን ድንነ ወ?	1. ኦርቶዶክስ 2. ካቶሊክ 3. ፕሮቴስታንት 4. መብለም 5. ሌላ ይገለፅ	
105	ብዙ ምን ድንነ ወ?	1. አሜሪካ 2. ኦሮሞ 3. ትግሬ 4. ጉራጌ 5. ሌላ ይገለፅ ...	
106	ቋሚ መኖሪያ አድራሻዎ ትነ ወ?	1. በከተማ 2. በገጠር	
107	ትምህርት ተከታትለዎት ወይስ?	1. አዎ	

		2.አላውቅም _____	ወደጥ.ቁጥር1 09 ይሂዱ
108	ከፍተኛው ትምህርት ደረጃዎትም ደን ወ?	1. የ መጀመሪያ ደረጃ ክ1-8 2. .የ ሀላተኛ ደረጃ ክ9-12 3. የ መፍትሄ ህርት 4.የ መጀመሪያ ደረጃ እና ከዛ በላይ	
109	የ ትዳር አጋርዎትም ትተከታተላል ወይ?	1.አዎ 2.አያውቅም _____	ወደጥ.ቁጥር 111ይሂዱ
110	የ ትዳር አጋርዎ ከፍተኛው ትምህርት ደረጃዎ ደን ወ?	1. የ መጀመሪያ ደረጃ ክ1-8 2. .የ ሀላተኛ ደረጃ ክ9-12 3. የ መፍትሄ ህርት 4.የ መጀመሪያ ደረጃ እና ከዛ በላይ	
111	በአሁኑ ሰዓት መደበኛ ስራዎ ደን ወ?	1. የ ቤት እመቤት 2.የ መንግስት ሰራተኛ 3. የ ግል ስራ 4. አርሶ አደር 5. የ ቀን ሰራተኛ 6. ነጋዴ 7. ተሞሪ 8. ሌላ ይገለፅ	
112	የ ትዳር አጋርዎ መደበኛ ስራዎ ደን ወ?	1.የ መንግስት ሰራተኛ 2. የ ግል ስራ 3. አርሶ አደር 4. የ ቀን ሰራተኛ	

		5. ነጋዴ 6. ተሞሪ 7. ለላይ ገለፅ	
113	የቤተሰብዎ ወርገ በምን ያህል ነው?	ኢትብር	
114	ወደዚህ የህክምና ተቋም ለመግዝብ ምን ያህል ሰዓት/ቀን ይፈጅል?		
115	የጠፍኢን ሽራን ስላልዎት?	1.አዎ 2.አይ	
116	ስንት ልጅ ተወለደዎል?	_____	

ክፍል ሠለተኛ ጥናታዊ ታይዎች የሚፀን ጭካኑን ሰርዘውቱት

ጥያቄ መለያ	ጥያቄዎች	ምላሽ	ይዝላለች
201	ስለሚፀን ጭካኑን ሰርሰምተው ያውቃሉ?	1. አዎ 2. አይ	ወደጥ.ቁጥር 203 ይሂዱ
202	ስለሚፀን ጭካኑን ሰርሰ የሰማችሁት ምን ነው?	1. ከማናኛ ብዙሃን 2. ከጠፍባለሞቻች 3. ከትምህርት ቤት 4. ከቤተሰብ 5. ከጓደኞች 6. ለላይ ገለፅ	

203. ለሚፀን ጭካኑን ሰርሰ የሚጋልጡ ምክንያቶች ምን ይሆናቸዋል?

ተራቁጥር	አጋላጭ ምክንያቶች	ባለመጠየቅ	በማጠየቅ		
		አዎ	አዎ	አይ	አላውቅም
1	በልጅነት ወሲብ ምድር				
2	የቤተሰብ ምህፀን ጭካኑን ሰርሰ ታሪክ				

3	በርካታ ወሲብ ደኝቶች መኖር				
4	በወርሃ በባወቅት ወሲብ ሆይጸም				
5	ሲጋራ መጠቀም				
6	የቤተሰብ ጥቅም መጠቀም				

204. የህፃን ጤና ስርዓት ስለሚደረግ ወይስ አይደለም?

ተረቁጥር	መንገድ	ባለመወጣት	በመወጣት		
		አዎ	አዎ	አይ	አላወቅም
1	ኤች.ቪ.ቢ.ቢ.ዲ.ሲ.ቢ.ቢ.				
2	በበሽታ ወቅት ያለውን ምርመራ				
3	በዘርፍ መረጃ				

205. የህፃን ጤና ስርዓት የህመም ምልክቶች ምን ድንጋጌዎች ናቸው?

ተረቁጥር	የህመም ምልክቶች	ባለመወጣት	በመወጣት		
		አዎ	አዎ	አይ	አላወቅም
1	የህፃን ጤና ስርዓት ምልክት ወይስ አይደለም?				
2	የሪስፖንስ				
3	የዳህረት ምልክት				
4	ከቤት ሽታ ያለው ሰው መጥጣት				
5	ከወሲብ ምልክት ያለው ሰው መጥጣት				

206. የህፃን ጤና ስርዓት ምልክት ምን ድንጋጌዎች ናቸው?

1. አዎ

2. አይቻልም ደ.ቁጥር 208 ይሂዱ

3. አላውቅም

207. የህፃናት ምርመራ ስር እንዴት መሳተፍ ይቻላል?

ተረቁጥር	መሳተፍ ያለው ደረጃ	የመመዝገብ መረጃ			
		አዎ	አይ	አይ	አላውቅም
1	በርካታ የወጡ የደኅንነት ምርመራ				
2	በልጅ ትውልድ በሚከተለው መረጃ				
3	ከትኩረት በሚገኝበት				
4	በልጅ ስርዓት መረጃ				
5	የህፃናት ምርመራ ስር እንዴት መሳተፍ ይቻላል?				
6	ስራዎችን በመፈጸም				

208. የህፃናት ምርመራ ስር መሳተፍ ይቻላል?

1. አዎ

2. አይቻልም ደ.ቁጥር 210 ይሂዱ

3. አላውቅም

209. የህፃናት ምርመራ ስር እንዴት መደብን ይቻላል?

ተራ ቁጥር	እንዴት መደብን ይቻላል?	ባለመመገብ	በመረጃ ጥያቄ		
		አዎ	አዎ	አይ	አላውቅም
1	የህፃናት ምርመራ በሚደረግበት ሰዓት ይደረጋል				
2	በባለሙያ ምርመራ ይደረጋል				
3	በህፃናት ምርመራ ሰዓት ይደረጋል				

ክፍል 3- የመዝገብ ትኬት ስር የሕክምና ደረጃ ለመረጃ የሚገኝ ፍ

30 1	የህፃናት ምርመራ ሰዓት ይደረጋል	ዓ.ም..... ወር..... ቀን.....	
30 2	የህፃናት ምርመራ ሰዓት ይደረጋል	ዓ.ም..... ወር..... ቀን.....	
30 3	የህፃናት ምርመራ ሰዓት ይደረጋል	1. አዎ 2. የለም _____	ወደጥ. ቁጥር 305 ይሄዱ
30	ህፃናት ምርመራ ሰዓት ይደረጋል	1. የገንዘብ ጥያቄ	

4		2.የባህልቦታዎችስለሄዱ 3.ለወሳኔበመቸገር 4.በሪሲዩ ሜዳንስለመለኝ 5.በአቅራቢያየህክምናቦታስለለለ 6.የምእከቶችግንዛቤስለለለኝ 7. የኮቪድ-19 ስጋት 8. ለሌሎችሳለጥቀስ.....	
30 5	የጠፍባለሞያባመክሩበትእናህመጣችንባወቁበትመግልየጊዜክፍተትነበር?	1. አዎ 2. የለም _____	ወደጥ.ቁጥ _____ 307ይሄዱ
30 6	ምክንያቶችንነበርለጋልፅልንይችላሉ?	1.እንግዳመቀበያላይያለወረፋ 2.ሃከምርማገኘትያለወወረፋ 3.የተሳሳተምሮሜ 4. ለታካሚምሮሜአለማረጋግ 5.ለሌሎችሳለጥቀስ.....	
30 7	ወደዚህሆስፒታልበተላከበትእናበመጣቸውመግልየጊዜክፍተትነበር?	1. አዎ 2. የለም _____	ወደጥ.ቁጥ _____ 309ይሄዱ
30 8	ህክምናዎችሚደፍላጎትያጠጥሙትምክንያቶችለጋልፅልንይችላሉ?	1.የገንዘብጥቅርብ 2.ካንሰርየሜድንመሆኑንበመከብ 3.የባህልቦታዎችስለሄዱ 4.ለወሳኔበመቸገር 5. የህክምናቦታቀት 6. የኮቪድ-19 ስጋት 7.ለሌሎችሳለጥቀስ.....	

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ክፍል አራት፡ የታካሚዎች ወደ ህክምና የመፈናቀል ጎት

401	ወደ ዘመቻ ጥቅል መላኩ በፊት ህክምና ሲጠቀሙት በረወቁ ጠፍተዋል ሌሎች ትዩ ተባሉት በሽታ ምን ድንጋጌ በር?	1. የካንሰር በሽታ 2. ከካንሰር ሌላ 3. አልተነገረኝም	
402	የመጀመሪያ በዘመቻ ህመሙን ማቆም ሂደት የጠፍተዎት ምን ምርመራ አደርገው ለትነ በር?	1. አዎ 2. አይ	
403	ወደ ዘመቻ ጥቅል መላኩ በፊት ህክምና ሲጠቀሙት በረወቁ ጠፍተዋል በዘመቻ ህመሙን ማቆም ሂደት ምን ምርመራ አደርገው ለትነ በር?	_____	
404	ያሳሰቡት በሽታ ምን ድንጋጌ ወ?	1. ከብሉት/ከሙሉ ጋር ምን ምርመራ 2. ከብሉት/ከሙሉ ጋር ምን ምርመራ 3. የዳላው ምን ምርመራ 4. በግብረሰታችን ትግል ዘዴ ምን ምርመራ 5. ሌላ ካለ ግለፅ _____	
405	ይህ ህመሙ ለሰላም ወደ ምን ድንጋጌ ለሰዎች አመለካከት?	1. አዎ 2. አይ	ወደ ጥቅም C 407

			ይሂዱ
406	ለመጀመሪያ ጊዜ ይህ የህመም ስርዓት ምን ዓይነት ስርዓት ነው?	1. ለባለቤት 2. ለዳደር 3. ለቤተሰብ አባል 4. ጠፍባለሞያ	
407	ለመጀመሪያ ጊዜ እርዳታ ማግኘት ስርዓት?	1. ጠፍባለሞያ 2. ሆስፒታል 3. የግል ክሊኒክ 4. የባህል ህክምና	
408	የህመም ምልክት ስርዓት መረጃ ማግኘት ወይስ?	1. አዎ 2. አይ	ወደ ጥቁር C 410 ይሂዱ
409	በፓሽን መሪ መረጃ ማግኘት ወይስ?	1. ላለፉት 3 አመታት 2. ከ 3 አመታት በላይ	
410	በቤተሰብ ውስጥ የህመም ምልክት ስርዓት ማግኘት ወይስ?	1. አዎ 2. የለም	
411	የመጀመሪያ ጊዜ ወርሃ በባህያት መኖር ስርዓት?	_____	
412	ስጋ ርዕስ?	1. አዎ 2. አይ	
413	የኤች.አይ.ቪ መረጃ ማግኘት ወይስ?	1. አዎ 2. አይ	ወደ ጥቁር C 414 ይሂዱ
4	የምርመራ ወጪ ምን ዓይነት ነው?	1. ቫይረስ አለ	

1		2. អធិប្បធាន	
4			

Letter of declaration

I, the under signed, MPH student declared that this is my original work in partial fulfillment of the requirements for the degree of master of Public Health in Reproductive, Family and Population Health, which has never been presented in this or any other University. All the resources and materials used for the thesis development fully acknowledged as complete references.

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Signature: _____

Approval of the primary advisor

This thesis work has been submitted for examination with our approval as University primary advisor

Name of primary advisor: Mrs. Meselech Assegid (MPH, Assistant Professor)

Signature _____ Date: December 23, 2020