Cervical cancer screening uptake and associated factors among female Nurses and midwives in Jimma Zone: A cross-sectional study.

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Abstract

Background: Routine cervical screening has been shown to greatly reduce both the number of new cervical cancers diagnosed each year and deaths from the disease. Screening coverage in developing countries is low ranging from 2.0% to 20.2% in urban areas and 0.4% to 14.0% in rural areas. This study was carried out to assess cervical cancer screening uptake and associated factors among female nurses and midwives in Jimma Zone.

Objectives: The main objective of this study was to assess cervical cancer screening uptake and its associated factors among female Nurses and midwives in government hospitals of Jimma zone.

Methods and Materials: A cross-sectional study design was used from February to April 2016 using quantitative data collection methods. Study participants were female nurses and midwives working in all government hospitals of Jimma Zone.A pre-tested, structured, and self-administered questionnaire was used to gather information. Epi data Version 3.1 was to entered and analyzed by SPSS version 20. Bivariate analysis was used for the association of independent variable with the dependent. Variables found to related to the outcome variable, at p value $<=0.05$, was entered in to multiple logistic regression model, Odds ratios with 95% CI are reported for significant variables related to the outcomes Variable of Study.

Result: A total of 188 female nurses midwifes in Jimma zone government hospital, participated in the study, with a response rate of 93.4%. The magnitude of cervical cancer screening uptake at least once in last three years among the respondents was found 12.2%,95% CI:7.4-17.2). Knowledge and work experience of the respondents were significantly associated with Cervical cancer screening uptake with an adjusted odds ratio (AOR) of 3.685 95%CI(1.410 -9.634) and (AOR) of 3.383 95% CI: 1.292-8.854) respectively.

Conclusion and recommendation: Overall, the study results indicated a big gap regarding cervical cancer screening uptake in Jimma Zone despite available screening service.In addition,the study reveals inadequate level of knowledge towards cervical cancer screening,and particular attention should be paid to the provision of cervical cancer related knowledge through training and refreshment courses on cervical cancer screening.

Key words: Cervical cancer,Screening uptake,female nurses and midwifes.

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Acronomy

AIDS Acquired Immune Deficiency Syndrome

AOR Adjusted Odds ratio

CC Cervical Cancer

CCS Cervical cancer Screening

CI Confidence Interval

CSA Central statistics Agency

DHS Demographic health survey

EDHS Ethiopian Demographic Health Survey

ETB Ethiopian Birr

FMOH Federal Ministry of health

HIV Human Immunodeficiency Virus

HPV Human papilloma virus

HPVV Human Papilloma virus vaccine

NGO Non-Governmental Organization

OR Odds Ratio

PI Principal Investigator

SPSS Statistical package for social science

VIA Visual inspection with acetic acid

VIF Variance Inflation factors

VILI Visual inspection with Lugol's iodine

CHAPTER ONE
INTRODUCTION

1.1 Background

Cancer is a term used for malignant uncontrolled growth of cells and tissues. Cancer begins with irreparable damage to one or more genes controlling cellular growth, proliferation and apoptosis in a single cell which results in further genetic damage leading to abnormal cellular proliferation and evasion of the body's immune system. The process by which a normal cell becomes cancerous may take many years(1). Cervical cancer screening is a way to detect abnormal cervical cells, including precancerous cervical lesions, as well as early cervical cancers(2).Carcinoma of the cervix is a major public health Problem throughout the world. It is the commonest gynecological cancer and second only to cancer of the breast as a leading cause of cancer death world-wide(3). The burden of cervical cancer is disproportionately high among the developing countries where 85 % of the estimated 493, 000 new cases and 273, 000 deaths occur in resource-poor countries among women annually(4).An estimated 70,700 new cases occur each year, representing one quarter of all female cancers in sub Saharan Africa(5).

In 2010, it was estimated that 20.9 million women were at risk of developing cervical cancer in Ethiopia with an estimated 4,648 and 3,235 annual numbers of new cases and deaths, respectively(4).According to the WHO estimates, in Ethiopia 7,600 are diagnosed with cervical cancer and roughly 6,000 women die of the disease each year (6).In addition, according to an unpublished report from Tikur Anbessa radiotherapy unit, women make up 70 % of the total cancer patients and from this number, cervical cancer patients are estimated to account for 30 % (7).

The magnitude of the problem has been under recognized and under prioritized compared with the competing health priorities of infectious diseases such as HIV/AIDS, tuberculosis and malaria. Studies in the United States and Nigeria have indicated that the disease has the highest incidence among the lowest socio-economic groups(5).

Cervical cancer is largely preventable by effective screening programs and considerable reduction in cervical cancer incidence and deaths has been achieved in developed nations with systematic cytological smear screening programmes(8). Routine cervical screening has been shown to greatly reduce both the number of new cervical cancers diagnosed each year and deaths from the

disease(2). In sub-Saharan Africa, few women are ever screened for cervical cancer. Screening coverage in developing countries is low ranging from 2.0% to 20.2% in urban areas and 0.4% to 14.0% in rural areas(9).

As female Nurse and midwives working in hospitals have a unique opportunity to reach patients in maintaining an important role in patient advocacy, nursing care and development of behavioral interventions that influence cervical cancer screening and also they can have a major influence on the behavior of our women, but they need to be knowledgeable themselves about cervical cancer and the importance of early detection through screening to combat this emergent public health problem.

The purpose of this study is to assess the magnitude of cervical cancer screening uptake and associated factors among female nurses and midwives, working in government hospital of Jimma Zone.

1.2 Statement of the Problem

Worldwide, cervical cancer is the second most common cancer among women, after breast cancer. Every year,500 000 new cases are diagnosed and 270,000 women die of this disease, mostly (85%) in developing countries (11).

Estimated cancer incidence in Africa is 70/100,000-100/100,000 population. The commonest cancer in men is Kaposi sarcoma (15.5%) with cancer of the cervix representing 22.2% of all cancers among women. Most cases present at advanced stages when curative measures may be unsuccessful.(1).Its incidence in sub-Saharan countries ranges from 30 to 40 per 100,000 women(12).

The age adjusted incidence of cervical cancer in Ethiopia is 26.4 per 100,000 women, which is second only to breast cancer. Roughly 4,732 women die of cervical cancer each year, the highest cancer-related mortality rate (10.9 per 100,000) among Ethiopian women. However these estimates are likely an underestimate of cervical cancer cases and deaths due to a low level of awareness, limited access to screening and diagnostic services, and the lack of a national cancer registry. In previous studies conducted in Ethiopia Mekele town which were incorporated in the literature review part; the study identified Attitude and work place of female nurses as factor for cervical cancer screening(10).

In Jimma zone the total female population is 1,026,234 among them females 15 – 49 years are 548,643 (53% of the female population) who are at risk of developing cervical cancer. In Jimma, Sensitization for screening has been done via posters, village meetings (with entertaining traditional dances) and using radio (Radio Fana in Jimma with both National and Local languages). as a national strategic action plan cervical cancer screening is done through VIA, Pap smear and Biopsy at Jimma University Specialized hospital, at Marie's stops International clinic, at Family Guidance association clinic and at other four private clinics. Despite this sensitization and available screening services only few women are going for screening.

Female nurses and Midwives both as part of female population and as an important role player in improving and significantly impacting women morbidity and mortality with regard to cervical cancers screening, this study focuses to assess cervical cancer screening uptake and associated factors among female Nurses and Midwives.

1.3 Significance of the study

Research has shown that cancer outcomes are dependent on early detection, intervention and treatment (American Cancer Society Skin Cancer Facts, 2012). The cervical cancer rates are increasing every year despite educational initiatives created for the public. Many women are now experiencing cervical cancer and need to be assessed for early interventions. The female Nurses play a big role in creating awareness and promoting cervical cancer screening among women in their field practice area. Their attitude is often crucial in gaining women's confidence. It is therefore relevant to appraise the perception and utilization of cervical cancer screening services by female Nurses and midwives.

The findings from this study will provide information on factors that affect the use of cervical cancer screening services among female nurses and midwifes. Professionals in the field of public health and other stakeholders can gain useful information to educate women and to develop interventions that will lead to and increase the utilization of cervical cancer screening services. These interventions can be useful in contributing to positive social change by reducing the morbidity, mortality, and the associated cost of cervical cancer.

Information obtained from this study should alert authorities so that proper measures can be taken to save the lives of Ethiopian women by educating them and provide screening services in several places. At the end of the study training and awareness creation will be given to study participants with poor and particularly the importance of screening will be emphasized.
This study is also significant because the findings might be useful in improving the overall health seeking behavior of women in the country.

The knowledge gained through this study will help to evaluate some of the screening challenges (e.g. barriers to screening) and behavioral screening predictors (e.g., reasons for lack of uptake) in Jimma and contribute to knowledge that could be used in countries aiming to introduce nationwide disease preventative programe.

CHAPTER TWO
Literature Review

2.1 Overview of cervical cancer

Globally, cervical cancer is second to breast cancer as the commonest female cancer but in the developing countries, it is the leading cause of gynecological cancer related morbidity and mortality(13). Cervical cancer kills an estimated 275,000 women every year and 500,000 new cases are reported worldwide(14).Projections show that by 2030, almost half a million women will die of cervical cancer, with over 98% of these deaths expected to occur in low and middle-income countries(14).

In the United Kingdom (UK), cervical screening programs have been successful in securing participation of a high proportion of targeted women and have seen a fall in mortality rates of those suffering from cervical cancer. However, there remains a significant proportion of unscreened women and, of women in whom an abnormality is detected; many will not attend for Colposcopy(15). The introduction of pap smear in Sweden, three decades ago, has reduced the incidence of invasive cervical cancer by about 50%, however, it is indicated that a much larger reduction would be within reach if compliance with screening programs are improved(16).

In Uganda and other developing countries, cervical cancer is the most common cancer in women with an estimated incidence of 30 per 100,000 women. Over 80% of patients diagnosed with cervical cancer in Mulago Hospital, in Uganda presented with advanced disease (8). In Ethiopia cervical cancer is second common cancer and it is second leading cause of mortality with 4732 death annually following breast(2). And data compiled by Tikur Anbesa Hospital shows that 30.3% of all cancers diagnosed from 1996-2008 in the hospital were cervical Cancer (17).

2.2. Cervical cancer Screening

In asymptomatic women, cervical cancer may be discovered as a result of cervical cancer screening or incidentally, if a visible lesion is discovered upon pelvic examination. Some popular screening methods are Papanicolaou (Pap) smear, VIA, HPV DNA test and colposcopy. The screening for cervical cancer is based on two assumptions. The first is that prevention is better than cure and the second is early detection may allow early treatment as the primary pathologic process is still reversible. Screening tests are relatively simple procedures that separate healthy persons from those with a high probability of having the disease(18).

2.3 Factors associated with cervical cancer screening uptake

Several factors influencing cervical cancer screening have been reported. They include; lack of awareness, age and marital status, inadequate access to healthcare facility due to poor infrastructure, unawareness among the health care providers in rural areas regarding importance of early diagnosis and treatment. Other factors include; existence of alternative medicine, deficient economic and moral support from husband and family and an inappropriate demand for providing cervical cancer screening from the potential beneficiaries (19).

2.3.1 Knowledge about Cervical Cancer

A study done in German 2005, reported that sexually active adolescents may be at particularly high risk of developing cervical dysplasia because of earlier initiation of sexual intercourse, having multiple sexual partners also has an increased incidence of sexually transmitted infection (STI) and smoking and the possibility that the cervix may be more vulnerable to the acquisition of STI and carcinogenesis (20). Certain strains (HPV16 and HPV18) of HPV are central to the etiology of cervical cancer. The study concluded that the risk factors for cervical cancer include multiple sexual partners, multi-parity, and sexual activity at an early age, smoking, use of birth control pills and family history (20).A study done in Yemen in 2012 reported that, HPV infection (42.3%) as a cause of cervical cancer. Vaginal bleeding (77.2%), pelvic pain (43.9%), menstrual disturbances (35.1%) were the commonest symptoms Screening (59%) and HPV vaccine (18%) were methods reported for prevention of cervical cancer (13).

A Study in Nigeria showed that among female health workers Of the 220 respondents, 188 (85.5%) and 193 (87.7%) knew that cervical cancer is associated with HPV and multiple sexual partners, respectively. Majority [199 (90.5%)] knew that the disease can be detected at the precancerous stage through the Pap smear(21).In another study in Nigeria, conducted on women aged 20 to 65 years, only 15% had heard of cervical cancer (5). Study in cotedivore showed Knowledge on cervical cancer prevention among 251 midwives (42.4%) had appropriate knowledge about prevention of CC (score >70%). Midwives working in Hospital had better knowledge about CC prevention (52.8%) than those working in PHC (39.7%, p < 0.01) and SoM students (36.0%, p < 0.01)(22).

A study among 310 medical workers on knowledge, attitudes and practices on cervical cancer screening in Mulago Hospital, it is found that less than 40% of the respondents had knowledge of the risk factors for cervical cancer. In this study 81% of the respondents had never been screened for cervical cancer(8).

A study from Ethiopia in Mekele town reported that only HPV was an important predisposing factor for cervical cancer. More than one-third (38.1%) and 26.6% of the respondents knew that age and multiple sexual partner as a predisposing factor, respectively. With regard to signs and symptoms of cervical cancer, more than one-third (45.8%) of the study participants mentioned vaginal bleeding as one of the signs of cervical cancer (76.4%) know at least one preventive measure of cervical cancer (10).

2.3.2 Attitude towards cervical cancer and screening

A study done in UK showed that some women consider Pap smear test is unnecessary or of no benefit and considered themselves not to be at risk of developing cervical cancer. Additionally, they expressed that feelings of embarrassment and/or pain during Pap-smear test. The receipt of an abnormal result and referral for colposcopy causes high levels of distress, especially fear. Many women are frightened of medical procedures and believe that the abnormal smear is indicative of cancer and that their reproductive ability will be threatened. The resulting anxiety can have a severe effect on day to day functioning leading to depressed mood, decreased libido, low self-esteem with feeling of less attractive, tarnished, defiled or contaminated and dirty(13). Apart from women not having regular pap smears because of their cultural, ethnicity and socio-economic backgrounds,

historically, they have tendered to look to family and economic needs first and placed their own welfare as least priority. The needs of family or extended families compete with the need to have regular pap smear test performed or, indeed, any other aspect of preventative health (14). Beliefs about health and cancers have altered predictors of adherence among white women with abnormal pap smears but these were not applicable to other groups because health beliefs can vary by ethnicity. In some studies, Latinos and women of Asian descent endorsed more misconceptions about cancer and fatalistic beliefs(13).A study from Nigeria suggested that only 6% of all women interviewed reported ever receiving cervical cytology testing. The main reasons for not screening were lack of awareness of cytology testing (48%), dislike of pelvic examinations (47%) and absence of symptoms (17% rural, 31% urban) Long distance travel to service delivery points was also reported(23). In a study done in Lagos, 81.7% of patients with advanced cervical cancer had never heard of cervical cancer before, and 20%, 30% and 10%, respectively, thought the symptoms they had were due to resumption of menses, lower genital infection and irregular menses (9).The knowledge among the medical workers of Mulago hospital indicated that attitude and practices towards Pap smear screening were negative(8). Study From ethiopia done in addiss ababa tikur anbesa hospital shows from a total of 225 respondents, 144 (63.1%) have positive attitudes towards cervical cancer screening (18).

2.3.3 Sociodemographic factor

 There has been a consistent association between low socio economic status as defined by education, income and occupation and cervical cancer in multiple researches (7). Cervical Cancer is often referred to as a disease of "poor, uneducated and underserved women" Though the association made between socio-economic status and cervical cancer is not a direct association for the risk of cer- vical cancer, it has a significant implication for the exposure to HPV and development of cervical cancer. Though this association is not calculated in this study, it's important to use previous studies which have made this association to understand the findings within the current research. Several factors are involved in making this association; a women's level of education, income, and occupation are generally thought to influence the level of decision making and exposure to information women have. Women with low education and income are more likely to have less awareness of cervical cancer and preventive treatement. In addition,

routine checkups and visits to health care institutions by women is not a norm in devel- oping countries especially Africa. Though socio-cultural factors play an important role in influencing the health seeking behavior of women, economical factor (the ability to afford treatment and care) is also a crucial factor that affects the health seeking tendency of women. The data shows that majority of women have to share household earnings with up to 5 people. This leads to the inability of women to access good health care in the present study; women by and large were found to have a lower socio- economic status which highly compromises their ability to access to good health care(7).

Study in Ethiopia shows In regards to the participants occupation, majority of the women were found to be housewives 78 (39.4 %) and farmers 73 (36.9 %). In regards to education, the majority 103 (52 %) were found to be illiterate. Those who could read and write, attended grades 1–4, and 5–8were 29 (14.6 %), 21 (10.6 %), and 27 (13.6 %) respectively. The percentage of participants who attended secondary and higher education were very minimal. Only 6 (3 %) and 12 (6 %) of the population attended secondary and higher education respectively(7).

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┌─────────────────┐      ┌─────────────────┐      ┌─────────────────┐
│  Predisposing   │ ───▶ │    Enabling     │ ───▶ │    Outcome      │
│     factor      │      │     factor      │      │    Variable     │
└─────────────────┘      └─────────────────┘      └─────────────────┘
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Sociodemographic

- Age
- Marital status
- Religion
- Educational status
- Work experience
- Parity
- professional qualification
- Current contraceptive method
- substance use
- Formal trainig of cervical cancer screening

Knowledge

- Risk factor
- Causative agent
- screening option
- Preventive measure

Attitude

- Belief
- perception
- Motivation

CC screening uptake

Figure 1. Schematic presentation of concepual Framework

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CHAPTER THREE

Objective

General objectives

The main objective of this study was to assess the magnitude of cervical cancer screening uptake and associated factors among female Nurses and Midwives in Jimma Zone government hospitals.

Specific objectives

- To determine the level of cervical cancer screening uptake among female Nurses and Miwives.

- To identify factors associated with cervical cancer screening uptake among female Nurses and Midwives.

CHAPTER FOUR

METHODS AND MATERIALS

4.1 Study area, Setting and period

Jimma is one of the historical places in oromia region located on south west of Ethiopia and 352 Km From the capital Addis Ababa. In Jimma the total female population is 1,026,234 among them females 15 – 49 years are 548,643 (53% of the female population) who are at risk of developing cervical cancer. Source:(CSA-Jimma Office)

Map of Jimma Zone
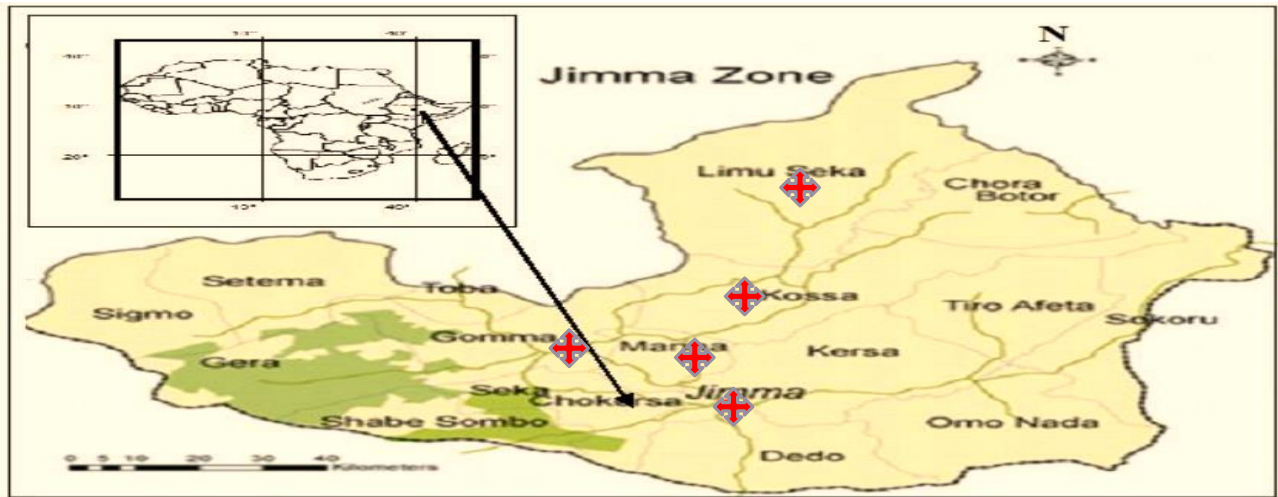
There are 5 Public hospitals,114 health centers, 512 health posts & more than 100 private health institutions providing health services including Cervical cancer screening(pap smear and VIA).This study was conducted in all five governmental hospital in Jimma Zone(one teaching hospital and four district hospitals) between February and April 2016. Those were:-Jimma University Specialized hospital is a teaching hospital. Shenen Gibe hospital, Limmu Genet hospital, Agaro hospital and Saka Hospital(district hospitals), focusing on Female Nurses and Midwives considering as one female population segment. (source:Jimma Zone Health Office)

4.2 Study Design

A cross-sectional study was conducted.

4.3 Sources of Population

The source populations constitute all Nurses and midwifes who were working in government hospitals of Jimma Zone.

4.4 Study population

The study populations were selected Nurses and midwives in government hospitals of Jimma Zone and willing to participate.

Inclusion and Exclusion Criteria

Inclusion criteria:

All Nurses and Midwifes working in government hospital of Jimma zone and willing to participate in the study.

Exclusion criteria:

Female Nurses and Midwives who had already screened for cervical cancer,who had already diagnosed for cervical cancer,who were critically ill and who were not in the study area during data collection.

4.5 Sample size determination and Sampling techniques

Since the data was not available on the prevalence of cervical cancer screening uptake of female Nurses and midwives in the area, 50% of population proportion considered to determine sample size based on single population proportion with a 95% confidence interval and a precision of (0.05) was assumed.

$n = (Z\alpha/2)^2 P (1-P)/ d^2$ 　　　　Where 　　n = minimum sample size

$n = (Z\alpha/2)^2 P (1-P)/ d^2$ 　　　　　　P=estimated proportion of population with of cervical cancer screening uptake among female Nurses and midwives (50%).

d = Marginal error taken (0.05)

$n = (Z\alpha/2)^2 P (1-P)/d^2$ 　　　　　$= (1.96)^2(0.5) (1-0.5)/ 0.05^2 = 384$ minimum sample sample size.

Since source population was <10,000 population correction formulas was employed with the following formula: $Nf = n/(1+n/N)$

Where nf =desired sample size   n= the calculated sample size; N= total population

n = minimum sample size (384),   N = total number of female nurses and Midwives (346),

Nf =minimum final sample size $= 384/(1+384/346) = $**182.8 =183**

Thus nf =182.8 After which n*f* become **183** and considering 10% non-response rate of **18.2** lastly the final sample size become 201.

= **201** study participants were required.

4.6 Sampling Procedure

The study was designed to cover all governmental Hospitals in Jimma zone. To draw the required numbers of sample. The following Steps were employed.

Step 1

The respondents were proportionately divided among the five hospitals, Jimma University specialized hospital had 141 respondents and the other four district hospitals had a total of 60 respondents to made 201 participant.

Step 2

A List of female Nurses and Midwives was obtained from human resource unit of each hospital as a sampling frame and simple random sampling technique was employed to draw study subjects from each hospital.
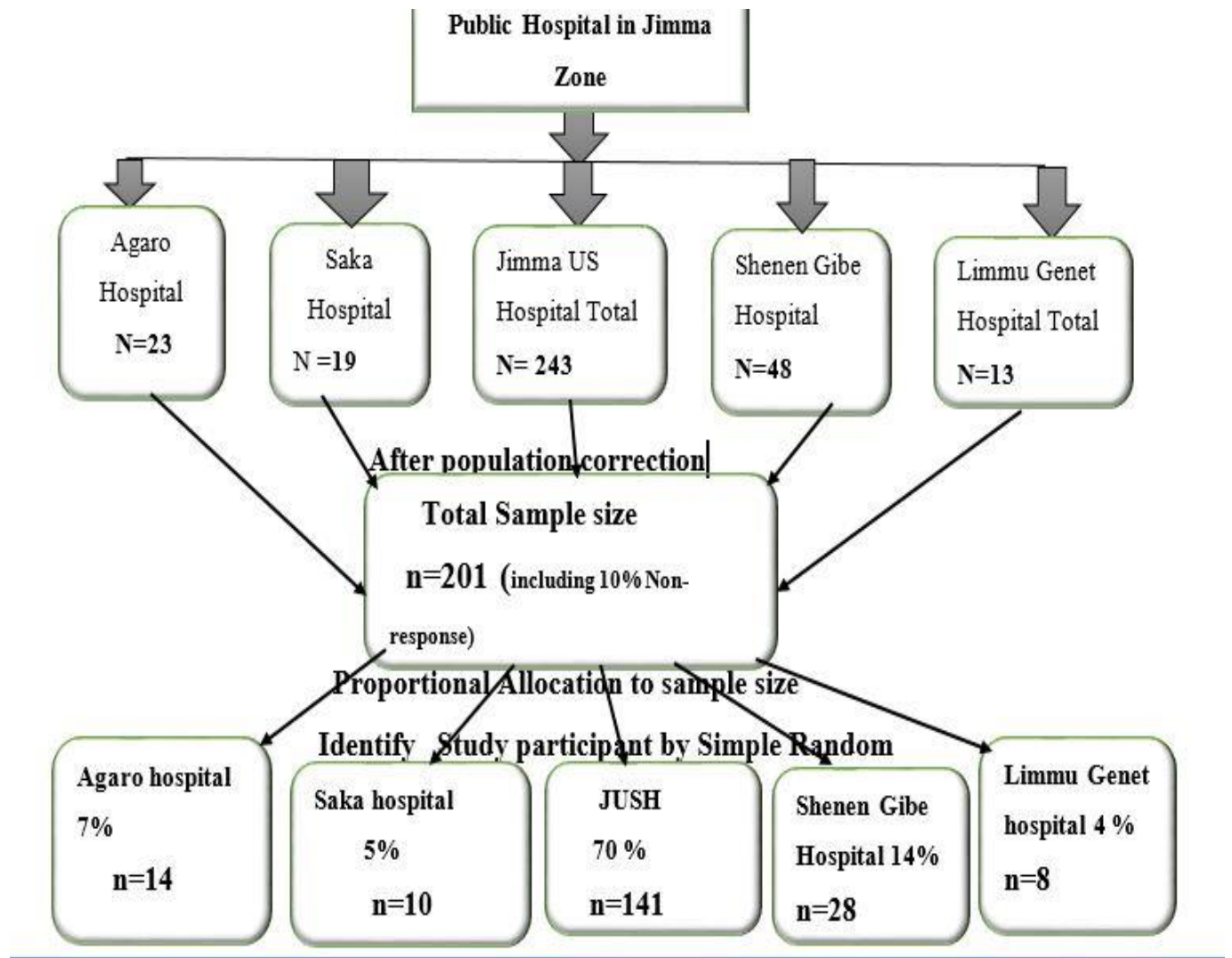
Figure 2. Show schematic presentation of sampling procedure

4.9 Study Variable

Dependent Variable

Cervical Cancer screening uptake

Independent variables

Knowledge

Attitude

Socio-demographic variables such as: Age, Religion, Ethinicity,Marital status, Parity,Educational status,Professional qualification,work experience,Current contraceptive methods,Substance used,Formal training on cervical cancer and screening.

4.7 Data collection procedures

A structured Self-administered questionnaire was used to collect information. The questionnaire was prepared in English. A standardized questionnaire was developed from earlier studies related to factors associated to cervical cancer screening uptake, the questions sought to gain insight into a respondent's cervical cancer screening uptake, knowledge and attitudes. It also covered demographic characteristics of respondents.The questionnaire was pre tested before the start of data collection. The principal investigator recruited one health officer supervisor and four diploma nurse facilitators and gave one day training on questionnaire and data collection techniques. The questionnaire have 4 major areas that included:

Cervical Cancer screening uptake —had a combination of 3 questions towards cervical cancer screening uptake. The uptake was assessed by looking on the respondent's action towards screening for premalignant cervical lesion in the past three years. Those who ever uptake cervical cancer screening were regarded as Screened, and those who never uptake screening were regarded as Not screened. Dependent variable was defined and explored by single question outlined in questionnaire part four number 401:Have you ever screened for cervical cancer in past threeyears?. The other two questions were reasons related to screened and not screened for cervical cancer.

Demographics—had 11 questions that cover socio-demographic and reproductive areas.

Knowledge about Cervical cancer screening—had 26 questions that related to different aspects of cervical cancer and screening and scored out of 26 point. They ranged from sources of basic information, signs and symptoms, risk factors,causative factors and screening options as well as the prevention methods.

Attitudes towards cervical cancer screening—has 10 questions both positive and negative statements that used afive point likert scale to measure the attitude of respondents toward different aspects of cervical cancer and Screening.

Barrier to cervical cancer Screening uptake-has a combination of nine questions and the other option could be barrier explained by the respondents.

4.8   Data processing and analysis

Collected data was checked for completeness, cleaned, coded, entered, and analyzed using Epi data version 3.1 and SPSS version 20 statistical package. Descriptive statistics (frequencies, means, standard deviations and proportions of all variables) were determined and tabulated to describe the data. For analytical statistics, Bivariate analysis was used primarily to check for the association between dependent and independent variables.The Variables found to related to the outcome variable at p value =<0.25, was entered in to multiple logistic regression model for controlling the possible effect of confounders.The variables included in the binary logistic regression was variables produced p value of <=0.25 on the bivariate analysis. The results of the final model was expressed in terms of Odd Ratio (OR) and 95% confidence intervals (CI) and statistical significance was declared if the P-value is less than or equal to 0.05.

4.10 Ethical consideration

The Ethical approval letter was obtained from Institutional Review Board of Jimma University and official permission was sought from Zonal Health office and Hospital administrative body to get permission and cooperation. The respondents were informed about the objective and purpose of the study and verbal consent was obtained from each respondents. Also they were informed about their right of not participating in the study. In addition, confidentiality of information was

assured and privacy of the study populations was respected and kept as well. Moreover, to ensure confidentiality the name of respondents was not written in the consent form. The final report of the study was submitted to Jimma University departments of Epidemiology and Biostatics, to CBE office and zonal health office. Finally possible efforts was made to publish the result on national and international peer reviewed journals.

4.11 Dissemination and utilization of the results

After completion of research, the results of the study was presented in Jimma University School of Public Health as partial fulfillment of master's degree in public health. The study findings are disseminated to relevant authorities who deserve the results; Jimma University, MOH, RHB, and Jimma Zone health office and other stakeholders.

 In addition to this, the final result document will be presented to Oromia health bureau and other responsible bodies working in the area. Beside to this, the findings of the study will be published through peer reviewed journals as scientific outputs.

4.12 Data Quality and Control

In order to maintain and ensure validity and reliability of the data collecting instruments, first the questionnaire was pretested. The pretest was conducted in 5 % of similar female nurses and midwives at randomly selected from Jimma university specialized hospital which were not be included in the main study. There were reasons why pretest was done in Jimma specilised hospital since all hospitals in Jimma zone were included in the study there was no means of conducting pretest otherthan the source population and the was no enough budget available to go to the nearest zone for pretest.But to minimize information contamination nurses who were working in operation theater room and Intensive care unit) were selected assuming that nurses working in this unit were relatively restricted in movement to other units due to the busy environment of the unit. Based on the finding possible amendments was made. In addition, Training was given for the data collection facilitators and supervisor on the administration and checking of completeness of the questionnaire before the actual data collection. Every day after data collection, questionnaires was reviewed and checked for completeness, accuracy and clarity by the supervisor and principal Investigator.

4.13 Operational definitions

Knowledge –The previous information stored in mind of the study subject regarding cervical cancer screening. Each knowledge questions has choices which given value 1 and 0 respectively. They ranged from sources of basic information, signs and symptoms, risk factors,causative agent,Screening (option,Interval and Procedure) as well as the preventive measures. Each response was sum up and categorized as poor knowledge for score 0-12, Fair for 13-18 score and Good knowledge for > 18 score or in other words out of knowledge question for those who answered greater than 70% were categorized Good knowledge,for those who answered between 50-70% fair knowledge and for those who answer below 50% categorized poor knowledge.

Attitude -Belief , Opinion, way of thinking: behavior reflecting about cervical cancer screening which may be computed from **Li**kert scale that is used to measure the attitude of the respondents toward cervical cancer screening and it was assessed using the five point scale: 1. strongly disagree 2. Disagree 3. Neutral 4. Agree 5. Strongly agree, and each response was sum up and the mean score was calculated to use as a cut point for positive and negative Attitude**.**

Positive attitude: Refers for those scored the mean and the above mean.

Negative attitude: refers for those scored below the mean.

Cervical cancer screening; Steps taken to identify people with any form of cervical changes and those without any form of cervical change.

Uptake- This refers to the action of making use of something. The uptake was assessed by looking on the respondent's action towards screening uptake for premalignant cervical lesion in the past three years. Those who ever screened themselves in the past time(three years) were regarded as screened and who those never screened regareded as not screened.

Female Nurese and midwives- Female who were working in hospital as a professional nurse (BSC Nurse),or staff nurse (Diploma Nurse), or midwife nurse (Both BSC and Diploma holders).

CHAPTER FIVE
5. RESULT

5.1 Response rate

Out of the 201 questionnaires distributed to female nurses and midwifes working in the hospitals of jimma zone during the study period, all were agreed to participate in the study but thirteen of the questionnaires were excluded from the study because of incomplete and inconsistent response, the analysis was done based on 188 remaining questionnaires. The response rate from Jimma university specialised hospital(teaching hospital) were 139 (73.9%) and from the other four district hospitals the response rate were 49 (19.5%) making the overall response rate of 93.4%.

5.2 Sociodemographic and Socioeconomic characterstics of the respondent

The age of participants ranges from 19 to 53 years with the mean age of the respondents was 27.1 with standard deviation of 6.51 . Majority (56.9%) of the respondents were ages of less than 25 years old and (43.1%) were above 25 years . Almost Half of the respondents, 50.5% (n=95) were Orthdox; around one third 28.7% (n=54) were protestant and Musilim consisits 18.6% (n=35) of the respondents.Among all respondents more than half 55.9% (n=95) were Oromo, Amahara 24.6%(n=46) the rest constitutes different ethinic group as shown in the(table 1).

Regarding educational status of all the nurses and midwifes invited in the study, 54.3% (n=102) had BSC degree, and 45.7% (n=86) had Diploma holders. Majority of respondent's professional qualification were nurses 80.3%(n=151)and 19.7%(n=37) midwifes respectively. The minimum and maxmum work experience was 1 and 35 years. The mean work experience of the respondent was 5 years with standard deviation of 6.2 and median work experience was 3 years (table 2).

Table 1. Sociodemographic and socioeconomic characterstics of female Nurses and midwifes in Jimma zone government Hospital.Jimma Ethiopia 2016 n=188

Characterstics	Category	Frequency	Percent
Age	<=25 years	107	56.9
	>25 years	81	43.1
Religion	Orthodox	95	50.5
	Protestant	54	28.7
	Muslim	35	18.6
	Other	4	2.1
Ethinicity	Oromo	105	55.5
	Amhara	46	24.9
	Kefa	12	6.4
	Yem	9	4.8
	Tigre	7	3.7
	Gurage	5	2.6
	Dawuro	4	2.1
Educational Status	Bsc degree	102	54.3
	Diploma	86	45.7
Professional Qualification	Nurse	151	80.3
	Midwife	37	19.7
Work experience	Less than 3 years	**110**	**58.5**
	Greater than 3 years	**78**	**41.5**

Note* work experience is categorized by considering median work experience median=3 years

5.1.2 Reproductive and behavioral characterstics of the respondent

Majority of the respondents, 52.7% (n=99) were married; 44.1% (n=83) single. Regarding their Parity Most 54.8% (n=103) of the respondents were null parous, 45.2(n=85) having birth ranges from one to four. Most of the respondent 60.1%(n=113) currently did not use any contraceptive method,11.7(n=22) use natural method and the rest of respondents 26.6%(n=24) use diffrenet methods of Hormonal contraceptive.Almost all participants 186 (98.9%) had no formal training on cervical cancer screening

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Table 2 Reproductive and behavioral characterstics of female Nurses and midwifes in Jimma zone government Hospital.Jimma Ethiopia 2016 n=188

Characterstics	Category	frequency	Percent
Marital status	Single	83	44.1
	Married	99	52.7
	Other	6	3.2
Parity	Null para	103	54.8
	1-3 children	81	43.1
	4 and Above	4	2.1
Current Contraceptive methods	No method	113	60.1
	Natural method	22	11.7
	Hormonal(pill/Inject/Implant)	30	26.6
	IUCD	3	1.6
Smoking status	Yes	4	2.1
	No	184	97.9
Formal training on CC screening	Yes	2	1.1
	No	186	98.9

5.2 Cervical cancer screening uptake among respondent

To measure CC screening up take, participants were asked a single questioned about their cervical cancer screening uptake (have you screened for cervical cancer in the past three years?).

Cervical cancer screening uptake among the respondents in the past three years was found to be 12.2% (n=23) (CI:7.4-17.2). Majority 165(87.8%) of the respondents had never been screened for cervical cancer in the past three years. Amog the respondents who screened for cervical cancer in the past three years,More than half 16(8.5%) cited the reason for screening was doctor request and the other 7(3.7%) reason was self conviction.

Uptake of cervical cancer screening

Screened
Not Screened

12.2%
87.8%
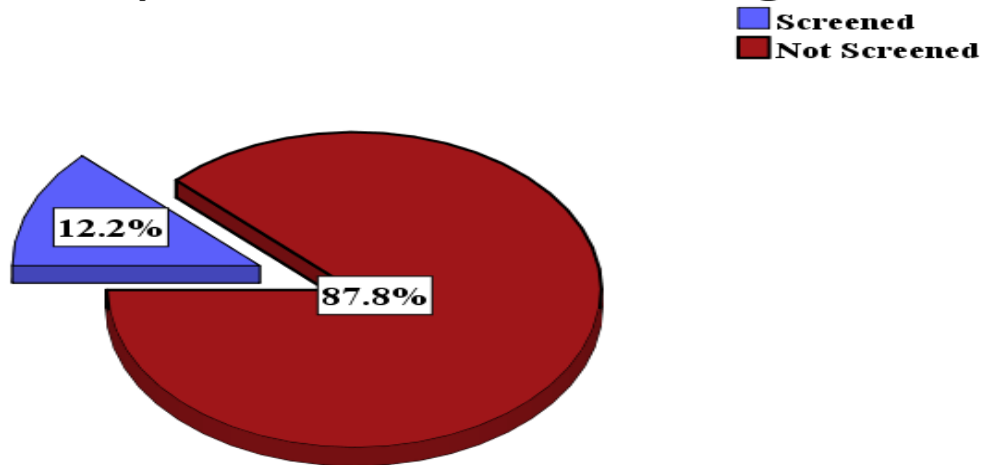
Figure 3 Show cervical cancer screening uptake of female Nurses and midwifes in Jimma zone government Hospital.Jimma Ethiopia 2016 n=188

5.2.1 Resean for not uptaking/not screened for cervical cancer

 When asked about the reasons for not uptake of cervical cancer screening the majority (34.3%) indicated that there was nothing wrong with them and felt healthy and therefore they did not attend the screening. Second and third most commonly given answers were not part of general screening for such test and being it is painful (23.5%, and 16.9%, respectively). Other answers included:9.6% It is expensive,8.4%, it is embrasing,7.2% others(negligence,I don't know where the service is available, and there is no screening opportunity in our hospital) were reasons explained by the respondents.
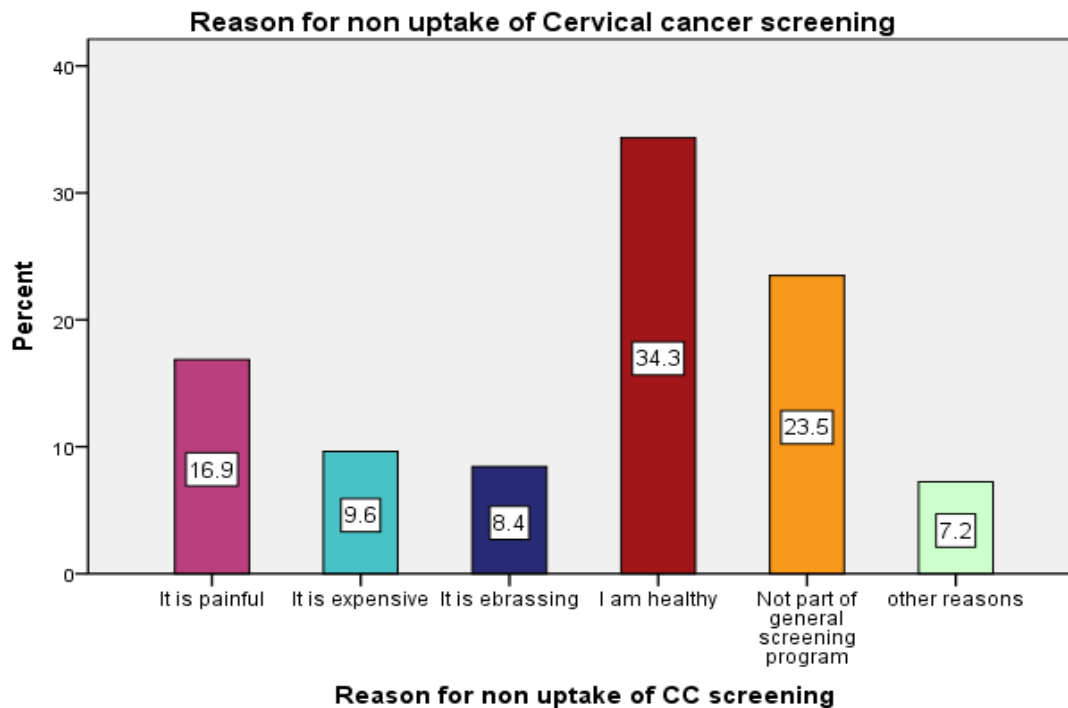
Figure 4 Percentage distribution of female Nurses and midwifes reason for not uptaking cervical cancer screening in Jimma zone government Hospital.Jimma Ethiopia 2016 n=165

5.3 Knowledge towards cervical cancer and screening

5.3.1 Overall knowledge

More specific questions designed to measure knowledge of multiple aspects of cervical cancer (e.g. the etiologic cause of cervical cancer or risk factors of cervical cancer, symptoms of cervical cancer) and screenings options(e.g. the name of a screening method or description of the proces, an appropriate age for first screening, and the recommended time interval between screenings)and knowledge of human papilloma viruse vaccine (HPV) were asked with appropriate response options.

The respondent's level of knowledge towards cervical cancer and screening were categorized as good, Fair and poor knowledge based on their score of the knowledge part questions out of 26. The maximum score expected were 26 and 0 minimum score. When Percentage scores were counted for questions related to knowledge about cervical cancer and screening, only 11.7% of nurses were adjudged as

having good knowledge, 39(20.7%) had fair knowledge and Two third 127 (67.6%) of the respondents had poor Knowledge, respectively.
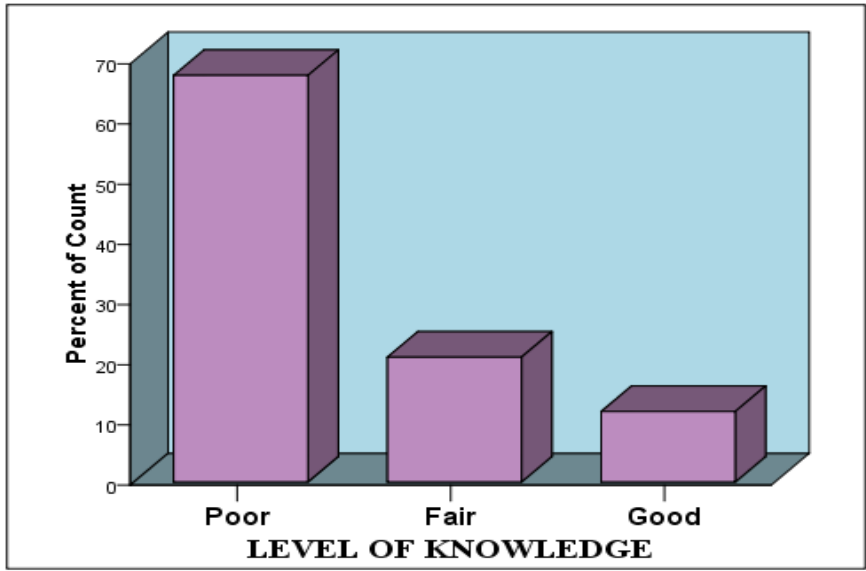
Figure 5 shows the level of knowledge of female Nurses and midwifes on cervical cancer and screening in Jimma zone government Hospital.Jimma Ethiopia 2016 n=188

5.3.1 Source of Knowledge, early detection and treatment outcome of cervical cancer

Majority(81.4%) of the respondent aware/ about cervical cancer from different sources.About half (47.3%) participating nurse and midwifes accredited Gynacologist for their knowledge they had about cervical cancer and screening, and 38.8% and 13.3% of them mentioned mass media and nursing college as the source of their knowledge respectively. Majority 67.6% of the respondent believe that early detection of cervical cancer screening is good for treatment outcome.
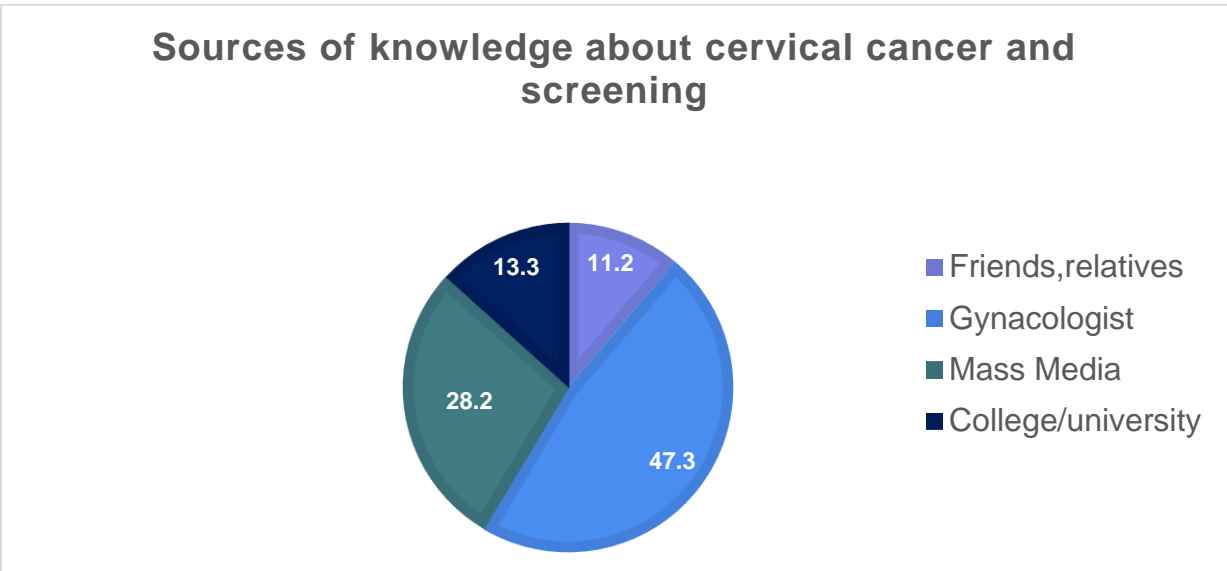
Figure 6 Percentage distribution of female Nurses and midwifes sources of knowledge about cervical cancer and screening in Jimma zone government Hospital.Jimma Ethiopia 2016 n=188

About two third (63.3%) of the respondents knew at least one risk factors for the development of cervical cancer. Among all risk factors majority 41.5%(n=78)   of the respondents answered multiple sexual partener as risk factors, but only Less than a quarter(23.4%) of respondents knew human papilloma virus as a risk factor for cervical cancer.

 Regarding knowledge of causative agent of cervical cancer only half 50.0% of them know HPV as acausative agent for cervical cancer and more than one third 37.8 % do not know the causative agent for cervical cancer. When asked about symptoms of cervical cancer Abnormal Vaginal bleeding was the most 67.0% known symptom of cervical cancer and followed by 41.0% Foully vaginal discharge.

 5.3.2 Screenig option, procedure and preventive measures of cervical cancer
Regarding eligibility for cervical cancer screening more than half 55.3% knew that screening eligibility is above age 25 years. When asked about cervical cancer screening interval only very few(8.5%) knew that screening done every five years, About one third (26.6%) donot know the cervical cancer screening interval.Concerning cervical cancer screening procedure the most (46.3%) procedure known by the respondent was pap smear and VIA known by (14%) of the respondents and more than one third(38.8%) of the respondent don't know any type of procedure used for cervical cancer screening.

Screening options of Cervical cancer
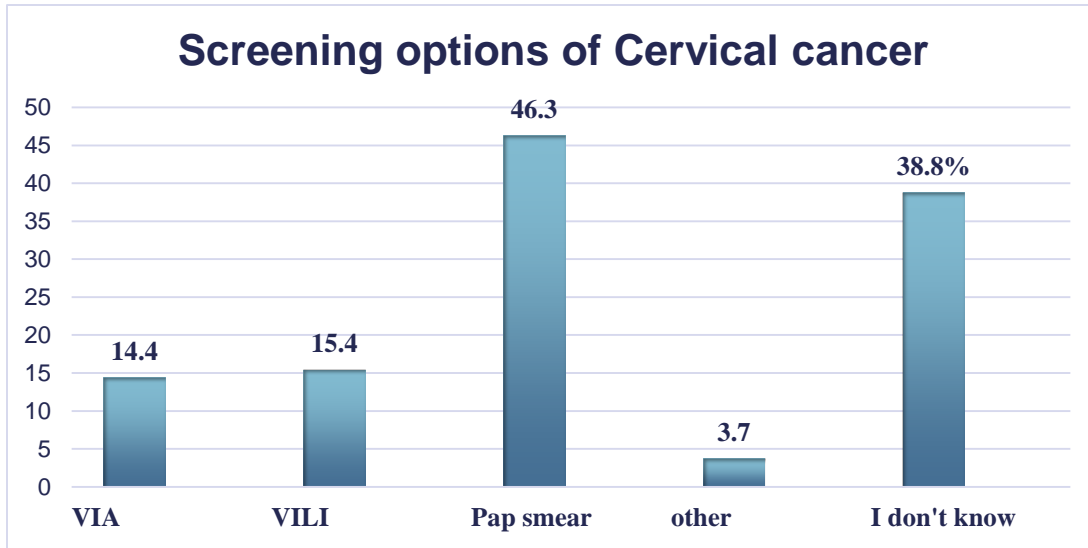
Figure 7 Percentage distribution of female Nurses and midwifes aware about screening options of cervical cancer in Jimma zone government Hospital.Jimma Ethiopia 2016 n=188

 Among all respondents majority 44.7%   knew pap smear screening as preventive measure and 26.6 % know HPV test while 21.8% donot know any of preventive measures.

Two third 65.4% of the respondent haven't heard about human papilloma viruse vaccine and one third 34.6% heard about HPV vaccine.among respondents who heard HPV vaccine only 3.7% knew the recommended age to recieve human papilima viruse vaccine.

Table 3 Percentage distribution of female Nurses and midwifes knowledge of risk factors of cervical cancer, causes,symptom , screening procedure and its preventive measures in Jimma zone government Hospital.Jimma Ethiopia 2016 n=188

Variables	Frequency	Percent
Do you Know the risk factor of cervical cancer?		
Yes	119	63.3
No	56	29.8
What is the Causative agent of cervical cancer?		
Human immune deficiency viruse(HIV)	10	5.3
Human papilloma viruse (HPV)	94	50.0
Bacteria	13	6.9
I don't Know	71	37.8
Which Symptom of cervical cancer do you know?		
Vaginal bleeding b/n periods	126	67.0
Vaginal foul smelling discharge	77	41.0
Wt.Loss	48	25.5
I don't know	23	12.2
Who should be screened for cervical cancer?		
Women of 25 yrs &above	128	68.1
Prositutes	21	11.2
Elderly women	49	26.1
I don't know	19	10.1
How frequent should cervical cancer be done?		
Once every year	104	55.3
Once every three years	18	9.6
Once every five years	16	8.5
I don't know	50	26.6
Procedure used in cervical cancer screening		
VIA	27	14.4
VILI	29	15.4
Pap smear	87	46.3
I don't know	73	38.8
Preventive Measure of cervical cancer		
Vaccination	29	15.4
Pap smear/VIA/VILI/Screening	84	44.7
HPV test	50	26.6
Drugs	24	12.8
I don't know	41	21.8
Do you know HPV vaccine?		
Yes	65	34.6
No	123	65.4

5.4 Attitude towards cervical cancer and screening

A total of ten questions put on Likert's scale to assess the attitude of participants towards cervical cancer screening. The minimum and maximum scored on the attitude questions by the respondents were 19 and 50 respectively and the mean attitude score was 38.6. Based on the respondents score on the attitude part question,more than half (52.1% n=98) had positive attitude towards cervical cancer and screening,while (47.9% n=90) of the respondent had negative attitude. Among respondents who had positive attitude or scored mean and above the mean,15.3% (n=15) respondents were screened for cervical cancer and the rest 8.9%(n=8) were not screened.
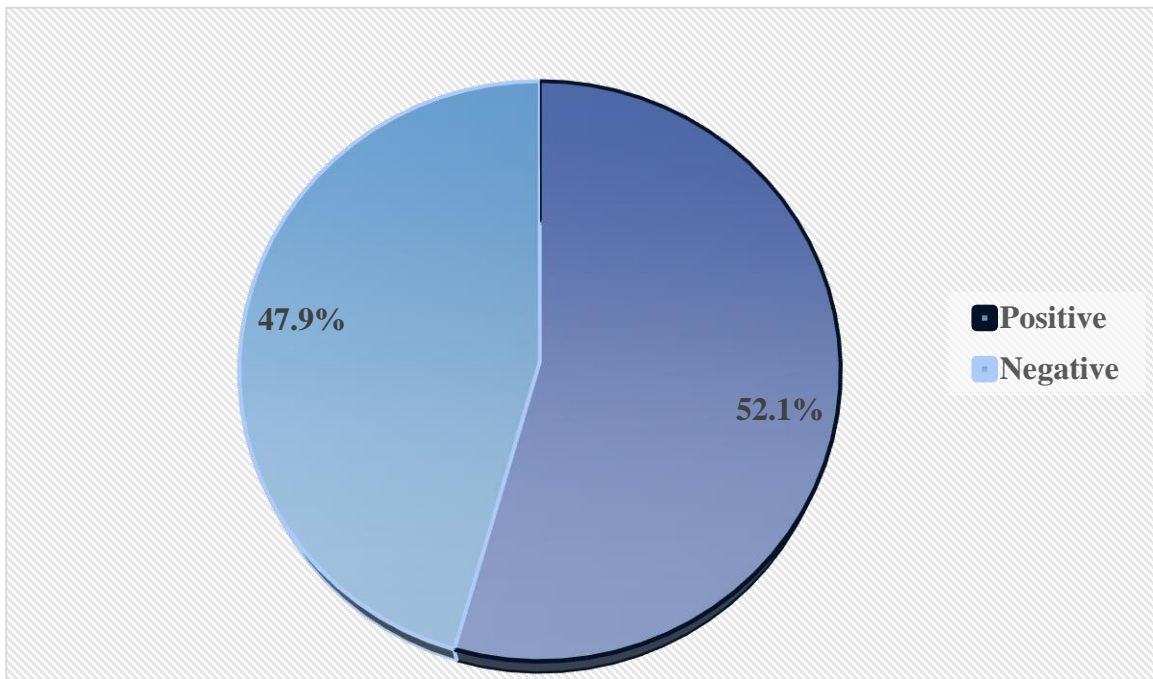
Figure 8 shows respondents level of attitude towards cervical cancer and screening in Jimma zone government Hospital,Jimma Ethiopia 2016 n=188

Table 4 Distribution of female Nurses and midwifes Attitude score for each questions of attitude in Jimma zone government Hospital.Jimma, Ethiopia 2016 n=188

Statement	Mean Score	Sd
Cervical cancer is a very serious disease	4.59	0.87
Cervical cancer is one of the leading causes of death in Women worldwide	4.44	0.85
Cervical cancer is a public concern in Ethiopia.	3.95	1.04
All women are at risk of developing cervical cancer.	3.65	1.18
Most risk factors of cervical cancer can be avoidable.	3.59	1.14
I am not personally at risk for developing cervical cancer.	3.20	1.32
It is possible to detect pre-cancerous cervical cells. Cancer early?	3.81	1.10
Cervical cancer screening is an essential part of women's healthcare	4.08	1.10
A cervical cancer screening program should be started in my community/Health institution	3.70	1.25
I feel that I do not have adequate knowledge about cervical cancer.	3.61	1.23
Total	**38.6**	5.3

5.5 Bivariate and Multivariate Analysis

Analyses of data were performed using standard statistical software SPSS. Extensive univariate, bivariet and multivariate analyses were performed to describe sociodemographic characteristics, knowledge and attitude. Bivariate categorical data analyses using chi-square was used to identify statistically significant associations between independent and dependent variables. Two categories for continuous variables were defined by the median. Specifically, the median work experience of the 188 included study participants was 3 years. Therefore, categories of work experience were defined as $< =3$ years and > 3 years, and two categories for knowledge and attitude variables were defined by the mean.

Age of the participant was categorized into two categories reflecting the age eligibility for cervical cancer screening according to national guideline Not eligible ($< =25$ years) and eligible (> 25 years).In terms of Parity, study participant were classified based on their status of giving birth. Having at least one birth and above defined multiparity. Not having birth defined as null porous. Binary logistic regression analysis was specifically used to assess the association between predictors (independent) variables and (dependent) variables .candidate variable with p .value 0.25 were selected, 95% CI were given for odds ratios (OR) and p value of 0.25 indicates statistically significant.

The predictor variables included socio-demographic,socio-economic and reproductive characteristics, Knowledge mean score of cervical cancer and screening(risk factors,causative agent knowledge of signs and symptoms, knowledge of cervical cancer screening option and preventive measures),and mean score of the respondents attitude.

5.5.1 Association between Sociodemorgraphic characterstics and Cervical cancer screening uptake

Socio-demographic characteristics of respondents in relation to Cervical cancer screening uptake was analyzed using bivariate logistic regression. A significant difference on the screening status of respondents among different age group, Work experience,parity and current contraceptive method of the respondents was detected with bivariate logistic regression analysis (Table 5). A group of respondents with age group above 25 years (OR=2.812;95% CI (1.129-7.007) 2.8 times more likely to be screened than respondents with age group less than 25 years. This might be linked to the age eligibility or the recommended age for cervical cancer screening. And work experience above three years(median work experience) (OR= 3.797 95%CI(1.480-9.744) over

3.7 times more likely to be screened as compared to work experience less than three years.This might be related to the nurses and midwifes experiences gained through time in the hospital and also their clinical exposure to cervical cancer patients and develop intention for screening.

In addition Multiparity (OR= 4.752 95%vCI (1.273-17.743) 4 .7 times more likely to be screened than Nullparity And female having one or two children. This also might be due to the knowledge about the relation between multiparity and cervical cancer and might be exposure to Screening opportunity.

Current use of hormonal contraceptive methods (OR=2.006 95% CI (0.649-6.204) hormonal contraceptive users were 2.0 times more likely to be screened than those who never used hormonal methods of contraceptive.this might be due to the awareness about the relation between using hormonal contraceptive methods and cervical cancer.

5.5.2 Association between Knowledge and CC Screenign uptake

Regarding the knowledge of the Female nurses and midwifes towards cervical cancer screening, in our study the bivariate logistic regression analysis showed that there is significant association between Knowledge of the respondents and cervical cancer screening uptake. A statistically significant association was observed between Knowledge mean score and uptake of cervical cancer screening at p=0.003.This analysis showed that as amean score of knowledge increases the uptake of cervical cancer screening Increases (OR= 4.107; 95% CI 1.598-10.550) and this means female nurses and midwifes who had knowledge score above mean were 4.1 times more likely to be screened as compared to female nurses and midwifes having knowledge below mean score.

5.5.3 Association between Attitude and CC Screenign uptake

Regarding the attitude of the female nurses and midwifes towards cervical cancer screening, in our study the bivariate logistic regression analysis showed that there is significant association between attitude of the respondents and cervical cancer screening uptake. A statistically significant association was observed between attitude mean score and uptake of cervical cancer screening. This analysis showed that as amean score of attitude increases the uptake of cervical cancer screening (OR= 1.852; 95% CI 0.745-4.605) and this means female nurses and midwifes who had attitude score mean and above mean were 1.8 times more likely to be screened as compared to female nurses and midwifes having attitude below mean score.

5.5.4 Multivariet Analysis

Multiple logistic regression analysis was done to identify the most significant predictor of cervical cancer screening uptake. In multiple logistic regression analysis a skewed response patterns of dependent variables was a major limiting factor (small cell sizes) leading to non-defensible test results.

Those variables with a p-value ≤ 0.05 were considered as a predictor for dependent variable. Odds ratio with 95% confidence interval and p-value at <=0.05 were computed to assessed the statistical significance and association between the dependent and independent variables.

The overall model goodness of fitness was prominent from The **Omnibus Tests of Model Coefficients at** p-value (sig= 0.002) which was less than 0.05 and the chi-square value was 20.3 with 6 degree of freedom that overall model was significant.Additionally, Hosmer-Lemeshow Test was 4.855 with a significance level of .773 therefore this indicating goodness of fitness of the model.

The multi collinearty test for each associated factor was checked. That means, their VIF<10 and tolerance were greater than 0.10 for each items of independent variables then there was no collinearty problem between the independents variables.

For the final adjusted model for cervical cancer screening uptake status(Table 5), all statistically significant variables from the primary analyses were entered into a logistic regression model. Backward stepwise logistic regression was performed. Variables with a statistical significance of $P <= 0.05$ were retained.In bivariate logistic regression, age, work experience, Parity,current contraceptive methods,knowledge mean score and attitude mean score of the respondents were significantly associated with the respondents cervical cancer screening status.Categorical total knowledge mean score and work experience were the last covariates in the model. It had a highly significant association with cervical cancer screening uptake. Female nurses and midwifes mean knowledge score was significantly associated with the respondent's cervical cancer screening status. (AOR=3.685; 95% CI 1.410 - 9.634) respondents who had knowledge above mean score were 3.6 times more likely to be screened as compared to knowledge score below mean.

In addition,Female nurses and midwifes work experience was significantly associated with the respondent's cervical cancer screening status (AOR=3.383; 95% CI 1.292 -8.854), respondents who had work experience greater than three years were 3.3 times more likely to be screened as compared to work experience less than three years.

Table 5. Bivariate and Multiple logistic regression of associted factors of cervical cancer screening uptake among female nurses and midwifes in Jimma zone.Jimma,Ethiopia 2016

Variable		CC screening Uptake		COR	AOR
		Screened	Not Screened	(95% CI)	(95% CI)
Age	> 25 years	15	66	2.812 (1.129-7.007)	1.435 (0.435-4.733)
	<=25 years	8	99	1.00	1.00
Parity	Multiparous	14	33	2.571 (1.025-6.454)	4.259 (0.936 - 19.376)
	Null parous	9	132	1.00	1.00
Work Experience	>3 years	16	62	**3.797 (1.480-9.744)**	**3.383 (1.292-8.854)**
	<=3years	7	103	1.00	1.00
Current Contraceptive Methods	Hormonal method	19	116	2.006 (0.649-6.204)	1.581 (0.493-5.077)
	No Method	4	49	1.00	1.00
Knowledge Mean Score	Mean & Above	16	59	**4.107 (1.598-10.550)**	**3.685 (1.410-9.634)**
	Below	7	106	1.00	1.00
Attitude Mean Score	Mean & Above	15	83	1.852 (0.745 -4.605)	1.575 (0.575-4.096)
	Below	8	82	1.00	1.00

5.6 Discussion

The study was aimed at determining factors associated with uptake of cervical cancer screening. Female nurses and midwifes knowledge on cervical cancers and screening, socio-demographic and socio-economic factors and reproductive characterstics of the respondents were identified,and tested as predictors of cervical screening uptake.

5.6.1 Cervical cancer screening uptake

The findings from this research showed that the uptake of cervical cancer screening was 12.2%, which is almost similar with studies conducted in Mekele town 10.7%(10).Nigeria (10%), and India (8%) and (24)(25). However, this is low uptake as compared to studies from Addis ababa 21.9%(26), Cote'dvior 18.4%(22)Turkey(51.3%) (18).This could be due to the accessability to cervical cancer screening service and difference in strategies to create a supportive environment, sustainable awareness creation for comprehensive screening and prevention of cervical cancer due to deference in nature of screening. These low uptake may be associated with the low health care utilization and health care seeking behavior, and the cultural influence where most women are not comfortable undergoing pelvic examination even when it is required.

5.6.2 knowledge of cervical cancer and screening

The knowledge of participants on risk factors for cervical cancer indicated that 63.3% of respondents had knowledge on the risk factors. And among those risk factors having multiple sexual partners 41.5%, early sexual intercourse and Human papilloma virus were mainly reported risk factors for cervical cancer by 27.7% and 38.8% of respondents respectively. This finding was almost similar with study done in Mekele among female Nurses(10). Study in in addis ababa (26), and findings from Nigeria (22) was higher. The difference in here lies mainly because cervical cancer, considered more prevalent in developed countries had received attention, which probably impacted knowledge of the nurses regarding risk factors of cervical cancer.

Knowledge of the respondents on symptoms of cervical cancer (67.0%) of them know vaginal bleeding between periods, foully vaginal discharge and wt.loss reported by 41.0%, 25.5% of respondents respectively. This finding is lower when compared to findings from addiss ababa (26) and study done in Nigeria(23). This may be exposures of nurses to cervical cancer patients and ever cared of patient with cervical cancer and working in oncology unit increases their concept about the disease.

The knowledge of participants on causative agent of cervical cancer indicated that 63.3% of respondents had knowledge on the risk factors.

Concerning interval of screening 8.5 % of the respondent had answered the correct sceering interval.The study done in indian nurses and study done in Nigeria shows Higher (21)(25). This may be the information access in the study set up and screening availability and refreshment courses given for nurses and midwifes.

Concerning methods of prevention half (50.0%) of the respondents had knowledg on avoiding human papilloma virus infection,multiple sexual partner and vaccination against HPV were the most commonly reported means of prevention by the respondents.

Concerning screening procedure/options (47.7%) of the respondent had knowledge about pap smear,which was lower than study done in Indian Nurses (25), study in Cotedior Midwifes(22). and study done in Nigeria(23). This may be due to inadequate training in Ethiopia that updates the nurses' knowledge on cervical cancer, less coverage on cervical cancer in the nursing curricula, and less exposure of nurse to cervical cancer patients in this country.

 Regarding the source of information about cervical cancer for the respondents majority 47.3% indicated the source of information was gynacologist that (55.5%), (38.8%) Mass media (13.3%) of respondents college and university were their source of information/knowledge on cervical cancer and screening. This finding is lower when compared to study in addis ababa done among nurses.(26) This may be due the availability of more gynecologist in hospitals of addis ababa and the availability of different private hospitals served by higher health professionals like gynecologist which helps the nurses for sources of information.

Regarding the knowledge about human papilloma vaccine of cervical cancer 34.6% heard and know HPV vaccine.which is similar to study done on health worker in Cameroon (11).

According to this study there was a significant association between Mean knowledge score of the respondents towards cervical cancer screening, Mean knowledge score (AOR=3.685; 95% CI 1.410-9.634). Sample from those Score above mean were (AOR=3.685)3.6 times more likely to be screened for cervical cancer as compared to knowledge score below mean score.

Strength and limitaions of the study

Strengths of the study

The study provided some evidence which can be used by decision-makers to initiate cervical cancer screening uptake among female nurses and midwifes and be used to develop intervention strategies to increase screening activities, thereby reducing incidence,morbidity, and mortality from the disease.

Limitations of the study

The uptake of screening was self reported by the respondents and there was no way of verifying the responses. Misreporting by respondents cannot be ruled out.

The study targeted selected Female nurses and midwifes as a proxy to cervical cancer screening uptake by all Nurses and midwifes in Jimma government Hospitals. Ideally, the research should have assesed every Female nurses and midwifes in jimma government Hospital, which was not possible due to funding constraints. Therefore the results may not accurately represent the female nurses and midwifes as a whole.

This study describes the factors associated in relation to cervical cancer uptake . Results from the study are not generalizable to female nurses and midwifes populations in other areas or communities of Jimma.

 The study didnot assess the socio-cultural factors and service related factors affecting uptake of cervical cancer screening, therefore the result may be not be generalizes for those other factors.

Only quantitative data were collected,obtaining qualitative data thruogth in depth interview might have yielded valuable result.

There are no adequate literatures on cervical cancer screening uptake among female Nurses and midwifes.

Despite these limitations, our findings have implications for healthcare services to ensure increased uptake of cervical cancer screening and dispel misconception about the screening.

5.7 Conclusion and recommendation

Conclusion

This study had attempted to determine cervical cancer screening uptake and factors associated with the uptake among female nurses and midwifes in Jimma zone government hospitals. Our study findings give insight regarding low uptake of cervical cancer screening that can be addressed as follows.

Screening uptake was very low 12.2% despite the high levels of awareness of cervical cancer and cervical cancer screening. This therefore indicates that there is disconnect between the respondents awareness and their health seeking behavior with regards to cervical cancer and screening.

A major barrier to screening was low level of knowledge of the disease as well as lack of information about cervical cancer and screening itself. Many Female nurses and midwifes reported that they feel healthy and others were afraid of the pain during screening.

The overall analysis of knowledge of respondents showed that 20.7% had Fair knowledge score, 67.6% had poor knowledge and 11.7% had good knowledge score. Respondents' overall mean knowledge score was 11.2**.**

Recommendation

First, Improving knowledge level of female nurses and midwifes through training on cervical cancer and screening and interventions should address misconceptions and fears about cervical cancer screening activities. Particular attention should be paid to the provision of cancer related knowledge. And maintaining work experience for female nurses and midwifes at least up to three years.

Second, Research is recommended that will look at the socio-cultural factors and service related factors affecting uptake of screening.

Third, policy makers and stakeholders should consider Awareness creation, education programmes and training to enlighten the Nurse and miwifes as well as Women in general about cervical cancer screening and integrating cervical cancer screening activities with primary health services and accord the disease the same priorities as those of HIV and childhood immunizations

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Annex I.Questionnaire

JIMMA UNIVERSITY, COLLEGE OF PUBLIC HEALTH, DEPARTMENT OF EPIDEMIOLOGY AND BIOSTATSTICS

Introduction and consent

Greetings!

Hello! My name is ---------------------I am working in research team of Jimma University, college of public health, Department of Epidemiology and Biostatistics. This is a study to be conducted with objective of Assessing the level of cervical cancer screening uptake and associated factors among Female Nurses and Midwives which may encourage or discourage females of child bearing age to utilize cervical cancer screeningin services health facilities. As the study is directly related to Female health nurses and midwifes, you are one of the Female nurses and midwives who are selected to participate in this study, therefore you are kindly requested to participate in this study and provide the information required from you. This study is completely on voluntary bases and you have the right to refuse from participation. Your response will be kept confidential and there will be no way of linking your individual responses to the final result of the study findings.

We would like to inform you that the responses that you provide the questions are very essential, not only, for the successful accomplishment of the study but also for producing relevant information which will be helpful in improving the cervical cancer screening service utilization.

I hope you will participate in the survey as your feedbacks are important. Thank you for your willingness to be my study participant and taking time to fill study questionnaire.

Name of Data collector--------------- sign ------------ Date--------------

Name of the supervisor --------------------- Sign --------------- Date-------

THANK YOU !

Part I.Socio-demographic Characteristics

Code_____ Address_____

QID	Question	Response Option	Skip Pattern	Remark
101	Age respondent	_____		
102	Religion	1.Orthodox 2.Protestant 3.Muslim 4.Other _____		
103	Ethnicity	1.Oromo 2.Amahara 3.Tigre 4.Other(Specify)_____		
104	Marital Status	1.Single 2.Married 3.Divorced 4. Widowed 5.Separated 6.Others(specify)_____		
105	Parity	_____		
106	Educational status	1. MSc Degree 2 Bsc Degree 3.Diploma 4.Other(Specify)_____		
107	Professional Qualification	Specify_____(example Nurse, Midwife)		

No	Questions	Response Option	Skip Pattern	Remark
108	Work experiences	_____		
109	Type of Contraceptive used	1.No Method 2.(Natural)Method 3.Hormonal(pill) 4.Injectable 5.Implant 6.IUCD		
110	Do you smoke(tobacco/shisha) chew chat?	1.Yes 2.No 3.Quit 4.I don't		
111	Formal training on cervical cancer screening	1.Yes 2.No 3.I don,t Know		

Part II. Knowledge towards cervical cancer Screening

No	Questions	Response Option	Skip Pattern	Remark
201	*Do You Know about the cervical cancer*	1.Yes 2.No 3.I don't Know		
201	*Where did you hear/learn about the cervical cancer screening for the first time?*	1.Relatives, friends 2.Gynecologist 3.Mass media (newspaper, internet, televion Family physician) 4.Other _____		

203	Is early detection of cervical cancer good for treatment outcome?	1.Yes 2.No 3.I don't Know		
204	*Do you Know the risk factors which can lead to cervical cancer?*	1.Yes 2.No 3.I don't Know		
205	If Yes, What are those risk factors for cancer of the cervix?(Check all)	1.Having multiple sexual partners 2. Early sexual intercourse 3. Acquiring HPV virus 4.Infection with human immunodeficiency virus (HIV) 5. Cigarette smoking 6. Do not know 7. Other (please explain):_____		
206	Cervical cancer is caused by	1.Human immunodeficiency virus (HIV) 2.Human papillomavirus (HPV) 3.Bacteria 4.Do not know		
207	What are the symptoms of carcinoma of the cervix?	1. Vaginal bleeding 2. Vaginal foul smelling discharges 3.Wt. Loss 3. Do not know 4.Other(Mention)_____		
208	Who should be screened for cancer of cervix	1.Women of 25years and above 2. Prostitutes 3. Elderly women 4. Others(Mention)_____		

209	How frequent is screening for cervical cancer done	1.Once every year 2.once Every three year 3.once every five year 4.I don't know		
210	Which preventive measures do you know for Cervical cancer? (Check all that apply)	1. Vaccination 2. Pap smear /VIA/VILI screening 3. HPV testing 4. Drugs 5. Others(Please specify)_____		
211	Can you mention any of the procedures used in screening for premalignant Cervical lesions?	1.VIA 2.VILI 3.Pap Smear 4.other_____ 5. I don't Know		
212	Have you heard of the human papillomavirus Vaccine? (HPV) vaccine?	1.Yes 2.No 3.I don't know		
213	If yes, who are those who should receive this Vaccine?	1.<10 years 2. 10-13 Years 3.15–49 years 4.>25 years 5.I don't know		

Part III. Attitude Towards cervical cancer Screening

5=strongly Agree   4= agree   3= neither agree nor disagree 2=Disagree 1=strongly disagree

N<u>o</u>	Questions	Response Option					Skip Pattern	Remark
		5	4	3	2	1		
301	Cervical cancer is a very serious disease							
302	Cervical cancer is one of the leading causes of death in Women worldwide							
303	Cervical cancer is a public concern in Ethiopia							
304	All women are at risk of developing cervical cancer							
305	Most risk factors of cervical cancer can be avoidable							
306	I am not personally at risk for developing cervical cancer.							
307	It is possible to detect pre-cancerous cervical cells. Cancer early?							
308	Cervical cancer screening is an essential part of women's healthcare							
309	A cervical cancer screening program should be started in my community/Health institution							
310	I feel that I do not have adequate knowledge about cervical cancer.							

Part IV. Up take of cervical cancer screening

	Questions	Response Option	Skip Pattern	Remark
401	Have you ever screened for cervical cancer in the past three years ?	1.Yes 2.No 3.I don't know		
402	Reason of uptake of cervical cancer screening?	1.Doctor request 2. Self conviction 3.part of ageneral screening program 4.No response		
403	Reason for non-Uptake of cervical cancer screening?	1.It is painful 2. It is Expensive 3.It is embrassing 4.I am healthy 5. No response 6. other_____		

Part V. Factors associated with low cervical cancer screening UP take Please indicate t*he extent to which each is a barrier* to screening for cervical cancer

No	Question	Response Option			Skip pattern	Remark
		Not at all	Some what	A lot		
501	Not sexually active					
502	No time					
503	Cost					
504	Not at risk					
505	Never heard of it					
506	Afraid					
507	Pain					
50	Transport					
509	**Don't know where to go for screening**					
510	Other(Mention)_____					