Knowledge Toward Cervical Cancer and Its Determinants Among Women Aged 30-49 in Jimma Town, Southwest Ethiopia

Tadesse Nigussie¹, Adane Asefa¹, Aderajew Nigusse², and Bitiya Admassu²

Abstract

Background: Cervical cancer is one of the common causes of premature death and disability in women worldwide. It is preventable through vaccination, and screening for precancerous lesions and early treatment. However, screening service uptake and treatment for cervical cancer face significant challenges in low-income countries due to poor information systems. The aim of this study was to assess knowledge of cervical cancer and its determinants among women aged 30-49 years living in Jimma Town, Southwest Ethiopia.

Methods: A community-based cross-sectional study was undertaken from March 20 to April 15, 2017. The data were collected using a structured interviewer-administered questionnaire and analyzed by SPSS version 21. Multivariable logistic regression analysis was done and variables with a p-value < 0.05 were considered statistically significant.

Results: Of the interviewed women, only 321(43.6%) had adequate knowledge about cervical cancer and screening. Attending secondary school or above (AOR = 2.42, 95% CI: 1.24-4.74), using modern contraceptives (AOR = 6.31, 95% CI: 2.86-13.89), knowing somebody with cervical cancer (AOR = 2.24, 95% CI: 1.35-3.71) and knowing someone screened for cervical cancer (AOR = 2.23, 95% CI: 1.30-3.80) were associated with knowledge of cervical cancer.

Conclusion: Knowledge of cervical cancer is low in the current study area even if appropriate knowledge regarding the disease is important in decreasing the incidence and prevalence of cervical cancer through screening and human papilloma virus vaccination. Increasing awareness regarding the disease and prevention strategies are the key issue.

Keywords
knowledge of cervical cancer, cervical cancer, jimma town, cancer screening

Background

Cervical cancer is among the common causes of early morbidity and mortality in women worldwide.¹ It is the fourth most frequently diagnosed cancer and the fourth cause of cancer related deaths among women globally.² But, there is a vast difference between low and middle-income countries (LMIC) and high-income countries (HIC) in terms of the occurrence, and death related to cervical cancer. About 570,000 cases and 311,000 deaths occurred due to cervical cancer worldwide, and approximately 84% of cases and 88% of all deaths caused by this cancer occurred in resource limited countries in 2018.³

Thirty five women per 100,000 women are newly diagnosed with cervical cancer in Sub-Saharan Africa every year, and

¹ Department of Public Health, Mizan-Tepi University College of Health Science, Mizan Aman, Ethiopia
² Department of Population and Family Health, Faculty of Public Health, Jimma University Institution of Health Science, Ethiopia

Corresponding Author:
Tadesse Nigussie, Department of Public Health, Mizan-Tepi University College of Health Sciences, Mizan Aman, Ethiopia.
Email: tadessenigussie21@gmail.com

Creative Commons Non Commercial CC BY-NC: This article is distributed under the terms of the Creative Commons Attribution-NonCommercial 4.0 License (https://creativecommons.org/licenses/by-nc/4.0/) which permits non-commercial use, reproduction and distribution of the work without further permission provided the original work is attributed as specified on the SAGE and Open Access pages (https://us.sagepub.com/en-us/nam/open-access-at-sage).
Methods and Materials

Study Area

A community-based cross-sectional study was conducted in Jimma town. Jimma town is the capital of Jimma zone, and located in Oromia regional state at 352 km from Addis Ababa in the southwest direction. Regarding the health care of the town, more than fifteen private clinics, 2 public hospitals, 2 non-governmental clinics, and 4 health centers have been providing health services in the town. Out of the above health facilities, the 2 hospitals and the 2 nongovernmental clinics have been providing cervical cancer screening using visual inspection of the cervix with acetic acid. Besides, accessibility to cervical cancer screening service in the town and utilization of the service by town residents was very low.

Study Design, Period and Populations

A community-based cross-sectional study was undertaken from March 20 to April 15, 2017, in the town. The source population was an all-female population aged between 30 and 49 years while the study population was randomly selected women 30-49 years of age. This age group was targeted because the Ethiopian cervical cancer screening guideline recommends that women between 30-49 years of age should be screened for cervical cancer regardless of other health condition.

Eligibility Criteria

Women age range between 30 and 49 were included while women who stayed less than 6 months in the study area were excluded from the study.

Sample Size Calculation and Sampling Technique

The sample size was calculated using single population proportion formula \( n = \left( \frac{Z_{a/2}}{d} \right)^2 \frac{p(1-p)}{p} \), based on the proportion (p) of knowledgeable women about cervical cancer in the population to be 25% which was taken from a study done among Mizan Tepi University female students, with a margin of error (d) of 3.2%, at a 95% confidence level \( (Z_{a/2} = 1.96) \), and 5% non-response rate. The final total sample size for this study was 742. Systematic random sampling technique was employed to select the study participants. First 5 Kebeles were randomly chosen from a total of seventeen kebeles of the town. Kebele is the lower most administration unit next to a district in Ethiopia. Then, the total sample was assigned corresponding to each Kebele according to the size of their households. Then after systematic random sampling was employed to select the households. An interval \( (k) \) through which sampling process made was calculate by deviding the total households each selected kebele to sample size allocated to that kebele. Finally, the eligible women in selected household were interviewed. The households that did not satisfy the criteria were replaced by the next household, and for a household with more than one eligible women, one woman was randomly selected using the lottery method.

Study Procedures

The interviewer-administered structured questionnaires were adapted from related literature to collect data. The questionnaire has parts like socio-demographic, reproductive characteristics, and cervical cancer knowledge. Questionnaires were translated to the local language (Afan Oromo and Amharic) from the English version. Then, back to English by an independent person to assure its accuracy. The questionnaire was pre-tested on 5% of the total sample size, which is a similar population to the study area in Agaro town. Agaro town is 40 km away from the study site. The collected data were evaluated for completeness, clarity, and consistency by the supervisor and principal investigator on a daily basis. Ten data collectors and 3 supervisors who were qualified with bachelors of science (BSc) in public health were recruited and trained for 2 days before a data collection on data collection tool, approach to the interviewees, details of interviewing techniques, respect and maintaining privacy, and confidentiality of the respondents. It took 15-20 minutes to complete the questionnaire.
Data Analysis

Epi-data manager version 4.0.2.101 and SPSS version 21 statistical packages were used to enter into software analyzes respectively. Descriptive statistics were done to describe variables using proportions and frequencies. Variables for multivariable binary logistic regression models were selected by cross-tabulations and bivariate analyses. The cutoff point was taken to be 0.25 in variable selection for multivariable analysis. After controlling for confounding, multivariable logistic regression was done and variables with a p-value of less than 0.05 were taken as factors associated with knowledge of cervical cancer. The odds ratio was used to explain the magnitude of the association.

Variables and Measurements

Socio-demographic: Socio-demographic variables like marital status, age, educational status, religion, and occupation. Reproductive characteristics: Reproductive characteristics were variables like the history of sexually transmitted infection, age at first sexual intercourse, HIV status parity, contraceptive use, and testing. Knowledge of cervical cancer: The outcome variable was knowledge about cervical cancer. It was assessed by 18 questions on cervical cancer and screening which answered as yes, no or I don’t know. During analysis, the correct answer was coded as 1 and incorrect answer as 0. The total points to be scored was 18 and the minimum was 0. On assessment, these respondents who answered 9 to 18 adequate knowledge and 0-8 scored was 18 and the minimum was 0. Other variables: Included knowing somebody with cervical cancer, advice from health professions, and knowing others who screened for cervical cancer.

Results

Sociodemographic Characteristics

Seven hundred thirty-seven women participated in the study, making a response rate of 99.3%. The mean age of the participants was 36.6 ± 5.3 years. Among the study participants, 41.2% were Muslim religious followers. The majority of women (82.8%) were Muslims. Out of the total study participants, 29.2% attended tertiary education and 34.6% were housewives (Table 1).

Reproductive Characteristics

Of the 737 women, 77.8% started sexual intercourse at the age of 20 years. The majority, (90.5%) mothers had given childbirth, and 57.7% of them had 3 or more children. During the survey, approximately 79.6% used modern contraceptives. Fourteen percent of respondents had a previous history of sexually transmitted diseases. The majority of respondents (89.1%) had a history of HIV tests. Forty seven percent of study participants knew somebody with cervical cancer, while 39.1% knew someone who had screened for cervical cancer.

Knowledge of Cervical Cancer

Of the total participants, 71.1% and 65.7% had heard about cervical cancer and screening test, respectively. Three hundred forty-six (66%) of respondents mentioned avoiding multiple
sexual partners as preventive methods for cervical cancer. More than one-third (33.2%) mentioned post-coital bleeding is a symptom of cervical cancer, and nearly two-thirds (69.1%) cited multiple sexual partners as risk factors (Table 2). From, interviewed women about only (43.6%) had adequate knowledge concerning cervical cancer and screening. The main information source of respondents about cervical cancer and screening was radio followed by TV (73.7%), health care providers (35.7%), written materials (7.6%), teachers (6.1%), and family (4.6%).

Factors Associated With Adequate Knowledge

After controlling for possible confounders, educational status, history of modern contraceptive use, knowing victim of cervical cancer, and knowing individuals screened for cervical cancer were statistically associated with knowledge of cervical cancer and screening. Women who attended secondary school or above had 2.42 times more likely to have adequate knowledge of cervical cancer (AOR = 2.42, 95% CI: 1.24-4.74). Those who used modern contraceptives were 6.31 times higher odds of having knowledge when compared with had not used it (AOR = 6.31, 95%CI: 2.86-13.89). Also, women who knew victims of cervical cancer were 2.24 times more likely to have adequate knowledge than those who do not know individuals with cervical cancer (AOR = 2.24, 95% CI: 1.35-3.71). Similarly, women knew individuals had been screened for cervical cancer were 2.23 times more likely to have adequate knowledge than their counterparty (AOR = 2.23, 95% CI: 1.30-3.80) (Table 3).

Discussion

The aim of the study was to determine level of knowledge regarding cervical cancer in women aged 30-49 years. According, only 43.6% of the interviewed women had adequate knowledge about cervical cancer. This finding goes in line with studies conducted among women aged 21-64 years in Addis Ababa (37.4%)24 and Debre Berhan University students (35.6%).25 But it is higher than studies conducted Northwestern26 and Eastern Ethiopia.27 The discrepancies between the current study and comparative studies might be due to variations in the study period, study population, study setting, sample size among studies or tool, and cutoff point used to measure level knowledge. The poor knowledge about the cervical cancer of the majority might resulted from the fact that cervical cancer got due attention very recently specially in developing countries. Health information, screening and treatment services regarding cervical cancer showed improvement recently globally.28 The proportion of respondents with adequate knowledge in the current study was also higher the finding of a study done on rural women in Lagos, Nigeria where only 15% of the women had awareness about cervical cancer.29 The difference might be because the study from Lagos was conducted on rural women, where there might be shortage of health information regarding cervical cancer.

### Table 3. Factors Associated With Knowledge of Cervical Cancer Among Women Aged Between 30-49 Years in Jimma Town in June 2017.

| Variables                                      | Knowledge status | Crude OR (95% CI) | AOR (95% CI)  |
|-----------------------------------------------|------------------|------------------|---------------|
| Educational status                            |                  |                  |               |
| No education                                  | 36               | 34               | 1             |               |
| Primary school                                | 74               | 57               | 1.23 (0.69-2.19) | 1.66 (0.83-3.29) |
| Secondary                                     | 68               | 55               | 1.17 (0.65-2.10) | 1.51 (0.75-3.06) |
| Above secondary                               | 143              | 57               | 2.37 (1.35-4.15) | 2.42 (1.24-4.74)* |
| Presence of radio as a source of Information  |                  |                  |               |
| Yes                                           | 296              | 180              | 1.31 (0.87-1.97) | 0.90 (0.31-2.60) |
| No                                            | 25               | 23               | 1             |               |
| Contraceptive use                             |                  |                  |               |
| Yes                                           | 294              | 164              | 2.59 (1.53-4.38) | 6.31 (2.86-13.89)* |
| No                                            | 27               | 39               | 1             |               |
| Know somebody with cervical cancer            |                  |                  |               |
| Yes                                           | 186              | 60               | 3.24 (2.23-4.71) | 2.24 (1.35-3.71)* |
| No                                            | 136              | 142              | 1             |               |
| Knowing someone who screened cervical cancer  |                  |                  |               |
| Yes                                           | 160              | 41               | 3.55 (2.38-5.29) | 2.23 (1.30-3.80)* |
| No                                            | 162              | 157              | 1             |               |
| Advice from a health worker                   |                  |                  |               |
| Yes                                           | 135              | 53               | 2.09 (1.42-3.08) | 1.39 (0.88-2.19) |
| No                                            | 185              | 151              | 1             |               |
| Parity                                        |                  |                  |               |
| Less than 3                                    | 115              | 65               | 1.29 (0.88-1.89) | 1.29 (0.85-1.99) |
| Three and above                               | 167              | 122              | 1             |               |

*Two tails test at p < 0.05, OR: odds Ratio, AOR: Adjusted odds ratio
This study revealed that women who had attended secondary school or above were more likely to have sufficient knowledge about cervical cancer and screening. This finding agrees with the study done in Dessie town, Northeast Ethiopia. Educated women can gain information about health topics including cervical cancer during their formal education or have more access to media and therefore, get empowered with health related knowledge/information; improved knowledge/information may in turn increase utilization of screening and treatment services.

The current study indicated that women who knew an individual with cervical cancer were more likely to have adequate knowledge about cervical cancer. This might be because women who knew an individual with cervical cancer, may be more concerned about their health status and search for information about the disease and its prevention methods. This finding is similar to the study done among reproductive-age women in Robe and Goba Towns, Bale Zone, Southeast Ethiopia. A study undertaken on women of reproductive age group (15-49 Years) in Harar Town, Eastern Ethiopia also indicated that respondents who knew someone affected with cervical cancer were 10 times more likely to have knowledge about cervical cancer than those who did not know.

Women who knew an individual screened for cervical cancer also had adequate knowledge in this study compared those who did not know screened individuals. This result is consistent with a study conducted in Tanzania. This might be because women who know someone screened for cervical cancer have better knowledge about cervical cancer and screening services, and might share information to others. Thus, the finding implies encouraging women who screened for cervical cancer to educate their neighbor, friends and relatives may improve knowledge of the service and its utilization.

It was also revealed in the current study that using contraceptive methods was strongly associated with higher odds of having adequate knowledge regarding cervical cancer. This could be because health care providers might inform/discuss the issue of cervical cancer during contraceptive service provision. A study have shown that women who received health information from health care providers had good knowledge about cervical cancer screening. It is good to integrate different reproductive services in order to address women who come to health facility for specific service. Finding from study done in Burkina Faso showed women who had used contraceptive methods had higher odds being screened for cervical cancer.

**Limitation of the Study**

Since the study was a cross-sectional study it is difficult to establish cause-and-effect relationships between knowledge and other variables.

**Conclusion**

The level of knowledge of cervical cancer is low among women aged 30 to 49 years living in Jimma town and many health facilities were delivering cervical cancer screening in the town. Using contraceptives, knowing somebody with cervical cancer and knowing someone screened for cervical cancer were factors associated with the women’s knowledge of cervical cancer. The health facilities have to work toward increasing women’s awareness of cervical cancer through local media and health extension workers.

**Authors’ Note**

Tadesse N. contributed to the conception and design of the study. Aderajew N, Adane A and Bitiya A. revised the draft of the study, manuscript and made the necessary edition. All authors read and approved the final manuscript. All data used in this study are available on the hands of the corresponding author and can be shared upon request. Ethical approval was gained from the Institutional Review Board (IRB) of Jimma University Institute of Health, and permission was attained from Jimma Town Health Office. Ethical approval was given on 21/03/2017 with a number of IHRPGC/763/2017. The ethical committee also approved the procedure for verbal consent. Each study participant provided verbal informed consent before joining the study.

**Acknowledgments**

We would like to thank Jimma University for providing financial support. Also we would like to thank Seyoum Haile (PhD) senior staff in the department of foreign language and literature for editing the paper thoroughly.

**Declaration of Conflicting Interests**

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

**Funding**

The author(s) disclosed receipt of the following financial support for the research, authorship, and/or publication of this article: Financial support was provided by Jimma University.

**ORCID iD**

Tadesse Nigussie https://orcid.org/0000-0003-3123-5809
Adane Asfafa https://orcid.org/0000-0001-9374-978X

**References**

1. Ginsburg O, Bray F, Coleman MP, et al. The global burden of women’s cancers: an unmet grand challenge in global health. *Lancet*. 2018;389(10071):847-860. doi:10.1016/S0140-6736(16)31392-7.
2. Bray F, Ferlay J, Soerjomataram I, Siegel RL, Torre LA, Jemal A. Global Cancer Statistics 2018: Globocan estimates of incidence and mortality worldwide for 36 cancers in 185 countries. *CA Cancer J Clin*. 2018;68(6):394-424. doi:10.3322/caac.21492
3. Arbyn M, Weiderpass E, Bruni L, et al. Estimates of incidence and mortality of cervical cancer in 2018: a worldwide analysis. *Lancet Glob Heal*. 2020;8: e191-e203. doi:10.1016/S2214-109X(19)30482-6
4. WHO. Comprehensive Cervical Cancer Control: A Guide to Essential Practice. 2014.
5. Bruni L, Albero G, Serrano B, et al. ICO/IARC Information Centre on HPV and Cancer (HPV Information Centre). Human Papillomavirus and Related Diseases in Ethiopia. 2019;22.

6. World Health Organization. Global Action Plan for the Prevention and Control of Noncommunicable Diseases. 2013.

7. Mesele B, Bezabih M, Tessema F, Sengi H, Deribe W. Risk factors associated with invasive cervical carcinoma among women attending Jimma University Specialized Hospital, southwest Ethiopia: a case control study. Ethiop J Heal Sci. 2015;25(4):3-10.

8. Peterite DG, Randall TC. Challenges in prevention and care delivery for women with cervical cancer in sub-Saharan Africa. Front Onco. 2016;6:160. doi:10.3389/fonc.2016.00160

9. Nigussie T, Admassu B, Nigussie A. Cervical cancer screening service utilization and associated factors among age-eligible women in Jimma town using health belief. BMC Women Heal. 2019;19(127):1-10.

10. Kahesa C, Kjaer S, Mwaiselage J, Ngoma T, Tensobol B, Dartell M. Determinants of acceptance of cervical cancer screening in Dar es Salaam, Tanzania. BMC Public Health. 2012;12(1):1. doi:10.1186/1471-2458-12-1093

11. Lim JNW, Lecturer S, Leader C, Health HP, Science M. Barriers to utilisation of cervical cancer screening in sub Sahara Africa: a systematic review. Eur J Cancer Res. 2016. 26(1):e12444. doi:10.1111/ecc.12444

12. Cunningham MS, Skrastins E, Fitzpatrick R, et al. Cervical cancer screening and HPV vaccine acceptability among rural and urban women in Kilimanjaro Region, Tanzania. BMJ Open. 2015;5(3):1-9. doi:10.1136/bmjopen-2014-005828

13. Idowu A, Olowookere SA, Fagbemi AT, Ogunlaja OA. Determinants of cervical cancer screening uptake among women in Ilorin, north central Nigeria: a community-based study. J Cancer Epidemiol. 2016;2016(7):1-6. doi:10.1155/2016/6469240

14. Geremew AB, Gelagay AA, Azale T. Comprehensive knowledge on cervical cancer, attitude towards its screening and associated factors among women aged 30-49 years in Finote Selam town, northwest Ethiopia. Reprod Health. 2018;15(1):1-12. doi:10.1186/s12978-018-0471-1

15. Mitiku I, Tefera F. Knowledge about cervical cancer and associated factors among 15-49 year old women in dessie town, northeast Ethiopia. PLoS One. 2016;11(9):1-10. doi:10.1371/journal.pone.0163136

16. Mabelele MM, Materu J, Ng’ida FD, Mahande MJ. Knowledge towards cervical cancer prevention and screening practices among women who attended reproductive and child health clinic at Magu district hospital, Lake Zone Tanzania: a cross-sectional study. BMC Cancer. 2018;18(1):1-8. doi:10.1186/s12885-018-4490-7

17. Reis N, Bebis H, Kose S, Sis A, Engin R, Yayan T. Knowledge, behavior and beliefs related to cervical cancer and screening among Turkish women. 2012;13:1463-1470.

18. Jimma Town Health Office. Health Office Data. 2016.