Cervical Cancer Screening Service Utilization and Associated Factors among Women in Reproductive Age Group Attending Public Health Facilities of Sodo Town, Wolaita Sodo

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Received: October 21, 2020; Published: January 28, 2021

Abstract

Background: Cervical cancer is the second leading cause of cancer deaths among women. Globally, 528,000 new cases and 266,000 death from cervical cancer were reported every year. Among these, 85% of deaths occur in low and middle income countries which are preventable and highly treatable if detected early. In spite of this threat, only few of women in developing countries have been screened for cervical cancer due to unclear causes. So, this study aimed to assess magnitude of cervical cancer screening service utilization and associated factors among women of reproductive age group attending public health facility of Wolaita Sodo Town, from March 12 to April 12, 2018.

Methods: Institution based cross sectional study was conducted from March 12 to April 12, 2018. Data was collected through face to face interview using pretested structured questionnaire. Proportional allocation was made to the facilities and each participant was selected by using systematic random sampling method. The data were entered into Epi-data version 3.02 software and exported to Statistical Software for Social Sciences version 21 for further analysis. Binary and multivariable logistic regressions were done. Adjusted odds ratio and p value were used to declare presence and strength of association.

Result: Magnitude of cervical cancer screening service utilization in this study was 18.6% (16.01, 21.18%) at 95% confidence interval. Variables associated with cervical cancer screening service utilization were educational status being secondary school and above AOR = 3.58; (95% CI: (2.27, 19.6)), occupational status being self-employee AOR = 3.69 (95% CI: (1.43, 9.54)), being government employee AOR = 4.63 (95% CI: (2.02, 10.64)), positive attitude 2.31 (95% CI: (1.01 - 5.29)) and being knowledgeable about cervical cancer and its screening AOR = 5; (95% CI: (1.88, 13.2)) in multivariate analysis.

Conclusion and Recommendation: The magnitude of cervical cancer screening service utilization among age eligible women in the study area was low. Variables independently determining cervical screening service utilization were educational status, occupational status, attitude towards cervical cancer screening service and knowledge about cervical cancer. Therefore, we recommend health institutions, health extension workers, and non-governmental organizations working on women health promotion and media services to promote and encourage women to utilize cervical cancer screening service.

Keywords: Cervical Cancer; Hospital; Screening; Screening Service

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Abbreviations


Introduction

Cervical cancer is the second most common cancer in women worldwide. An estimated 528,000 cases and 266,000 deaths were reported among women worldwide in 2012 [1,2]. Cancer is a global community health problem with rising incidence in developing countries because of increasing prevalence of risk factors. Human papilloma virus (HPV) is one of causes of sexually transmitted infection (STI) and also responsible about 70% cases of cervical cancer worldwide. Early diagnosis and treatment of cervical pre-cancerous lesions prevents up to 80% of cervical cancers in high resource countries [3,4]. It is also highly curable when it is found early in its stage and there were several cervical cancer screening tests in use around the world which are HPV antibodies test, visual inspection with acetic acid (VIA), visual inspection with acetic acid and Lugol’s iodine (VILI) and pap smear test [5,6].

The Cervical Cancer Crisis Card highlights that Africa is the most dangerous place for a woman to be caught by cervical cancer where it is the second largest cancer killer of women in low and middle income countries. Sub-Saharan Africa contributed more than 85% of global burden of cervical cancer [7,8]. Currently, very few developing countries have been able to implement cervical cancer screening programs due to economic and psychosocial values. In the Middle East and North Africa, the first steps to implement national screening programs based on visual inspection tests using test kits were being currently completed. In contrast, in Sub-Saharan Africa, it is estimated that less than 5% of women at risk have ever been screened [8].

American cancer society (ACS), WHO and the United States Preventive Services Task Force (USPSTF) recommended that all age eligible women should be screened for cervical cancer at least once every three years [9,10]. Ethiopia has a population of 31.5 million women who were at risk of developing cervical cancer. The Current estimates indicate that every year 7,095 women were diagnosed with cervical cancer and 4,732 die from the disease. Cervical cancer ranks as the second most frequent cancer among women in Ethiopia [1,11].

Ethiopia adopted the World Health Organization recommendation and recommended women to utilize cervical cancer screening service at age of 30 - 49 years or three years past coitarchea and women with history risk practices at least once every three years. Screening and treating at the same point in single-visit approach by using visual inspection with acetic acid (VIA) is a very effective prevention strategy and it have positive effects to reducing morbidity and mortality in low resource setting [5]. But women in low and middle income like Ethiopia have a low participation rate in screening for cervical cancer [12-14].

Currently in Ethiopia, many governmental and nongovernmental organizations have programs or campaigns to increase uptake of cervical cancer screening mainly using visual inspection with acetic acid (VIA) and treatment (Cryotherapy) of abnormal lesions immediately following screening. For women whose test result is positive, referral system has been in place for treatment with loop electrosurgical excision procedure for early-stage lesions and other methods for advanced-stage diseases [15].
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The screening service utilization for cervical cancer among women was low in Ethiopia as revealed by different studies. Result from studies conducted in, Dessie, Mekele and Hosanna showed that women’s behavior of screening for cervical cancer is very low. Majority of previous studies conducted in Ethiopia were focus in female University students and female health workers. However, the knowledge and practice on cervical cancer and cervical cancer screening service utilization in general population was different from the women in the general population due to different aspects like age, sexual behavior and socio-economic factors. Studies were not conducted in general population in the study area.

Aim of the Study

This study aimed at assessing the magnitude of cervical cancer screening service utilization and associated factors among women of reproductive age group attending public health facility of Wolaita Sodo Town, from March 12 to April 12, 2018.

Materials and Methods

Study setting and design

Institution based cross-sectional study was conducted in Sodo town public health facilities from March 12 to April 12, 2018 among age eligible women. The town comprises three public health centers and one teaching and referral Hospital. The town has two cervical cancer screening centers; Wolaita Sodo University Teaching and Referral Hospital and Sodo Town health center.

Population

We took all women attending public health facilities of Wolaita Sodo town as Source population. Women attending public health facilities of Wolaita Sodo town during study period were considered as Study population.

Inclusion and exclusion criteria

Women in age group of 30 - 49 were included in study. We excluded women who came for second time during study period, critically ill and unable to respond from the study.

Sample size determination

The sample size was determined by using a single population proportion formula by taking assumption of 19.8% proportion of women who underwent cervical cancer screening [16] and 5% level of significance (0.05). The final sample size after adding non-response rate of 10% was 427.

Sampling procedure

We made proportionate sample allocation to health institution after getting number of client flow to respective institutions. Then, the systematic random sampling technique was applied to select participants of the study.

Data collection tools and procedure

Data was collected by five diploma midwives through face-to-face interviews after service utilization using a structured and pre-tested questionnaire. There are assigned to One-day training was given. We gave brief training to data collectors before actual data collection to ensure quality of data. Then, we conducted pretest in health facility out of Wolaita Sodo town and necessary adjustments were done on tool.
Operational definitions

- **Cervical cancer screening service utilization**: Women who are eligible to be screened within a population who have ever been screened for cervical cancer.
- **Cervical cancer screening**: A systematic application of a test using test kits to identify cervical abnormalities in an asymptomatic population.
- **Knowledgeable**: Refers to those who scored mean and above mean after summing up of knowledge questions considered as knowledgeable.
- **Attitude towards CCS**: The mean score was assessed using Likert scale calculated and those scored above the mean and the mean score have been favorable attitude and scores below the mean have been unfavorable attitude towards screening for pre-malignant cervical lesions.

Data analysis procedure

Data was entered using Epi-data and analysis was done using SPSS version 21. Variables with p-value of 0.25 in bivariate analysis became candidate for multiple logistic regression analysis and variables with p-value of less than 0.05 in multivariate analysis were used to determine presence of association. The strength of association between the independent and dependent variables was declared using result of adjusted odds ratios at 95% confidence intervals.

Ethical consideration

Ethical clearance was obtained from the Institutional Review Board (IRB) of Arba Minch University, College of Health Sciences. A formal letter of cooperation was sent to Hospital and Health centers and a formal letter of permission was obtained. Finally, a written informed consent was obtained from each study participant before interview. Patient responses kept confidential and were used only for study purpose.

Results

Socio-demographic characteristics

Among the 427 women, data was collected from 415 women making response rate of 97.1%. The mean age of the study participants was 33.7 years (33.7 ± 4.3SD). The majority of women were married 367 (88.4%). Two hundred seventeen (52.3%) of the women have attended primary education and 198 (47.7%) attended secondary schools and above level of education as shown in table 1.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Category</th>
<th>Frequency</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age of mothers (years)</td>
<td>30 - 39</td>
<td>357</td>
<td>86</td>
</tr>
<tr>
<td></td>
<td>40 - 49</td>
<td>58</td>
<td>14</td>
</tr>
<tr>
<td>Marital status</td>
<td>Married</td>
<td>367</td>
<td>88.4</td>
</tr>
<tr>
<td></td>
<td>Widowed</td>
<td>27</td>
<td>6.5</td>
</tr>
<tr>
<td></td>
<td>Divorced</td>
<td>21</td>
<td>5.1</td>
</tr>
<tr>
<td>Educational status</td>
<td>Primary level</td>
<td>217</td>
<td>52.3</td>
</tr>
<tr>
<td></td>
<td>Secondary level and above</td>
<td>198</td>
<td>47.7</td>
</tr>
<tr>
<td>Husband’s level of education</td>
<td>Primary level</td>
<td>105</td>
<td>28.2</td>
</tr>
<tr>
<td></td>
<td>Secondary level and above</td>
<td>268</td>
<td>71.8</td>
</tr>
<tr>
<td>Occupational status</td>
<td>Self-employee</td>
<td>80</td>
<td>19.3</td>
</tr>
<tr>
<td></td>
<td>Government employee</td>
<td>133</td>
<td>32</td>
</tr>
<tr>
<td></td>
<td>Housewife</td>
<td>202</td>
<td>48.7</td>
</tr>
</tbody>
</table>

Sexual and reproductive characteristics of the respondents

Sixty-one (68%) of respondents had more than one sexual partner and 350 (85%) were started their first sexual intercourse at the age of greater than 16 years and 62 (15%) with the age less than or equal to 16 years. Regarding the age at first pregnancy 97 (22.4%) less than 18 years and parity of the respondent 341 (82.2%) had one up to four children. One hundred fifty-eight (38.2%) had ever diagnosed sexually transmitted disease shown in table 2.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Category</th>
<th>Frequency</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age at first pregnancy</td>
<td>&lt;18</td>
<td>96</td>
<td>23.2</td>
</tr>
<tr>
<td></td>
<td>= 18</td>
<td>318</td>
<td>76.8</td>
</tr>
<tr>
<td>Parity</td>
<td>0</td>
<td>10</td>
<td>2.4</td>
</tr>
<tr>
<td></td>
<td>1-4</td>
<td>356</td>
<td>85.8</td>
</tr>
<tr>
<td></td>
<td>= 5</td>
<td>49</td>
<td>11.8</td>
</tr>
<tr>
<td>Age at first sexual intercourse</td>
<td>&lt; = 16</td>
<td>63</td>
<td>15.2</td>
</tr>
<tr>
<td></td>
<td>&gt;16</td>
<td>352</td>
<td>84.8</td>
</tr>
<tr>
<td>Now are you living with your first partner/husband</td>
<td>Yes</td>
<td>352</td>
<td>84.8</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>63</td>
<td>15.2</td>
</tr>
<tr>
<td>History of relationship with other partner before current marriage?</td>
<td>Yes</td>
<td>89</td>
<td>21.4</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>326</td>
<td>78.6</td>
</tr>
<tr>
<td>History of sexual contact with the previous partner</td>
<td>Yes</td>
<td>61</td>
<td>68.5</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>28</td>
<td>31.5</td>
</tr>
<tr>
<td>Have you ever diagnosed STI?</td>
<td>Yes</td>
<td>158</td>
<td>38.1</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>257</td>
<td>61.9</td>
</tr>
</tbody>
</table>

Table 2: Sexual and reproductive characteristics of the women attending public health institutions of Wolaita Sodo town, Ethiopia, 2018.
Knowledge towards cervical cancer and its screening

Concerning knowledge of respondents, 91 (21.9%) of the respondents scored mean and above of overall knowledge questions, and 324 (78.1%) responded less than mean in overall knowledge questions as shown in figure 1.

![Knowledge of respondent](image)

**Figure 1:** Knowledge on cervical cancer and its screening among age eligible women attending public health institutions of Wolaita Sodo, 2018.

Attitude towards cervical cancer screening

Attitude was assessed using 10 items attitude question with 5-point Likert scale. Among all women interviewed, 254 (61.2%) of the respondents had favorable attitude towards cervical cancer screening. And the left 161 (38.8%) had unfavorable attitude towards cervical cancer screening service uptake as shown in figure 2.

![Respondents Attitude](image)

**Figure 2:** Attitude of respondents towards cervical cancer screening service uptake among women attending public health institutions of Wolaita Sodo town, Ethiopia, 2018.
Cervical cancer screening practice

Among 415 women interviewed, 77 (18.6%) (95% CI 16.01%, 21.18%) of the respondents were screened for cervical cancer. The reason given for not being screened, 165 (44.8%) were thinking as they were healthy, 147 (39.9%) of the respondents don’t know about cervical cancer screening and thirty-five (9.5%) of the respondents did not give attention as shown figure 3.

![Figure 3: Respondents’ reason for not being screened for cervical cancer among women attending public health facilities of Wolaita Sodo Town, 2018.](image)

Factors associated with cervical cancer screening service uptake

Bivariate analysis was done to assess any association between independent variables and women’s cervical cancer screening service uptake. Variables at p-value of < 0.25 in bivariate logistic regression, significant in previous study and scientifically preferred variables were candidates for multivariable logistic regression.

Among variables entered in multivariate analysis, variables shown significant association with cervical cancer screening service uptake were educational status secondary and above (AOR = 3.58, 95% CI = 1.73 - 7.42), occupation of being self-employee AOR = 3.69 95% CI = 1.43 - 9.54 and being government employee (AOR = 4.63 95% CI = 2.02 - 10.64), knowledge about cervical cancer AOR = 5, 95% CI = 1.88 - 13.2) and having positive attitude towards cervical cancer screening (AOR = 2.31 95% CI = 1.01 - 5.29) attitude as shown in table 3.
Discussion

This study was planned to assess magnitude of cervical cancer screening utilization and associated factors among women at public health facilities of Sodo town, Wolaita Zone. Institution based cross-sectional study was conducted to achieve the objective.

Accordingly, the current cervical cancer screening service uptake among the study participants was 18.6% (at 95% CI 16.01%, 21.18%). Cervical cancer screening uptake in present study finding in line with the study conducted in Mekele 19.8%, Naivasha referral hospital and Nepal [16-18]. However, cervical cancer screening service uptake in the current study was higher than the study conducted in Uganda which was 4.8%, study in Illorin Nigeria which was 8%, study in Hosanna which was 9.9% study in Dessie which was 11% and study in India which was 11.62%. This may be due to socio-demographic difference, might be due to difference of settings in which data collection was done [19-23].

<table>
<thead>
<tr>
<th>Variable</th>
<th>Category</th>
<th>Cervical Ca screening</th>
<th>COR 95% CI</th>
<th>AOR 95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Educational status</td>
<td>Primary education</td>
<td>17</td>
<td>200</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Secondary and above</td>
<td>60</td>
<td>138</td>
<td>5.1 (2.8 - 9.14)</td>
</tr>
<tr>
<td>Husband’s educational status</td>
<td>Primary educational</td>
<td>11</td>
<td>94</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Secondary and above</td>
<td>54</td>
<td>214</td>
<td>2.15 (1.07 - 4.3)</td>
</tr>
<tr>
<td>Occupation</td>
<td>Self-employee</td>
<td>17</td>
<td>63</td>
<td>3.9 (1.8 - 8.5)</td>
</tr>
<tr>
<td></td>
<td>Government-employee</td>
<td>47</td>
<td>86</td>
<td>7.9 (4.08 - 15.4)</td>
</tr>
<tr>
<td></td>
<td>Housewife</td>
<td>13</td>
<td>189</td>
<td>1</td>
</tr>
<tr>
<td>Income</td>
<td>&lt; 900ETB</td>
<td>18</td>
<td>116</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>901 - 1600ETB</td>
<td>10</td>
<td>55</td>
<td>1.72 (0.5 - 2.7)</td>
</tr>
<tr>
<td></td>
<td>1601 - 2700ETB</td>
<td>14</td>
<td>68</td>
<td>1.32 (0.62 - 2.8)</td>
</tr>
<tr>
<td></td>
<td>&gt; 2700ETB</td>
<td>35</td>
<td>99</td>
<td>2.27 (1.21 - 4.27)</td>
</tr>
<tr>
<td>History of sexual relation with</td>
<td>Yes</td>
<td>24</td>
<td>64</td>
<td>1.93 (1.11 - 3.37)</td>
</tr>
<tr>
<td>other partner</td>
<td>No</td>
<td>53</td>
<td>274</td>
<td>1</td>
</tr>
<tr>
<td>Knowledge</td>
<td>Knowledgeable</td>
<td>34</td>
<td>28</td>
<td>8.75 (4.83 - 15.8)</td>
</tr>
<tr>
<td></td>
<td>Not knowledgeable</td>
<td>43</td>
<td>310</td>
<td>1</td>
</tr>
<tr>
<td>Attitude</td>
<td>Positive attitude</td>
<td>63</td>
<td>191</td>
<td>3.46 (1.86 - 6.42)</td>
</tr>
<tr>
<td></td>
<td>Negative attitude</td>
<td>14</td>
<td>147</td>
<td>1</td>
</tr>
</tbody>
</table>

*Table 3: Bivariate and multivariable logistic regression analysis associated factors for cervical cancer screening service uptake among women in Wolayta Sodo town public health facilities, Southern Ethiopia, 2018.

COR: Crude Odds Ratio; AOR: Adjusted Odds Ratio; *: p < 0.05 in multivariate analysis.

Factors associated with cervical cancer screening were educational status women who had learned secondary and above were 3.58 times more commonly screened for cervical cancer. Based on occupational status women with occupational status of self-employee and government employee were 3.69 times and 4.63 times more commonly screened for cervical cancer respectively. Women with positive attitude were 2.31 times more likely to be screened for cervical cancer. Women who were knowledgeable on cervical cancer and its screening were 5 times more likely to be screened for cervical cancer than their counterparts.

Women with educational status of secondary and above were more likely to be screened for cervical cancer than women those attend primary and below primary educational level. This finding similar with the study conducted among Koreans and Nepal [17,24]. This might be due to difference in severity perception among educated women status as well as women with higher educational level might get information through different mechanism than women who did not attend higher education.

Women who were knowledgeable about cervical cancer and its screening were 5 times more likely to be screened than those who do not have adequate knowledge. This study was consistent with the study conducted in Kenya [25]. This study also supported by study conducted in Mekele and Hosanna [16,23]. This study supported by study conducted in Dessie town women who were knowledge on cervical cancer were 11 times more commonly screened than those who have not knowledgeable [22]. This might be due to the respondents might have relatively higher contact with health professionals that could increase their knowledge.

Women with favorable attitude about cervical cancer screening were more likely to be screened for cervical cancer compared to those with unfavorable attitude. This finding similar with the study conducted in Ilorin, North Central Nigeria [20]. Women with occupational status of self-employee and government employee were more likely to be screened for cervical cancer than housewives. This finding similar with the study conducted Ghana and Naivasha referral hospital in Kenya [18,26]. This finding contradicts the study conducted among Koreans in that study those who had a job had lower attendance behavior in screening than those without jobs [24]. This might be due to socio-cultural difference and difference in study setting it might be difficult to attend a cancer screening program during work time.

The main reason of not utilizing cervical cancer screening service in this study were thinking as if they are healthy, absence of symptoms, lack of knowledge. The same result was also reported from the study done in Embu Hospital, Kenya and Nigeria among the top three reasons for refusing cervical cancer screening and lack of information also the reason raised for not coming for screening [27,28].

Conclusion
The magnitude of cervical cancer screening service utilization among age eligible women in study area was still low. Knowledge on cervical cancer, educational status, occupation and attitude towards screening were factors affecting cervical cancer screening service utilization. Common reasons given by women for not participating in screening service were feeling of healthiness because of absent symptoms followed by emotional barriers like fear of test procedure is painful and embarrassment and lack of knowledge were important predictors of cervical cancer screening service utilization.

Recommendation
Wolaita Zone Health office and Health facilities should work on women health by incorporating the cervical cancer screening utilization education program that encourages women. Health education and awareness creation regarding cervical cancer and its screening should be implemented at the health facility level especially at primary health care units.
Health care provider and health extension workers should give attention to all women who are eligible for cervical cancer screening, women with unfavorable attitude towards cervical cancer screening, women with lack of information about cervical cancer and its screening. Researchers should consider inclusion of qualitative methods at the community and national level to target all women.

**Competing Interests**
The authors declare that they have no competing interests.

**Authors' Contributions**
Tigist B. and Aseb A. conceived and designed the study. Tigist B., Woinshet G., Aseb A., and Dinkalem G. conducted field work and collected data, conducted data analysis.

**Acknowledgments**
We are very grateful to Arba Minch University College of Medicine and Health Sciences for giving chance and funding this research project. Our sincere and deepest gratitude goes to Sodo town public health facilities for their crucial assistance and facilitation. We would also like to extend our heartfelt appreciation to the study participants for their cooperation.

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Volume 10 Issue 2 February 2021
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