PRECANCEROUS LESIONS OF THE CERVIX AND ASSOCIATED FACTORS AMONG WOMEN IN SUDE DISTRICT, OROMIA REGION, ETHIOPIA

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ABSTRACT

BACKGROUND: Cervical cancer is a leading cause of death among women in developing countries. In less developed countries, including Ethiopia, most women who develop cervical cancer live in rural areas. However, exact data on the prevalence of the disease is lacking.

OBJECTIVE: To assess the prevalence of precancerous lesions of the cervix and associated factors among women age 30-49 years in Sude district, Arsi Zone, Oromia Region, Ethiopia, 2020.

METHODS: Community based cross sectional study was conducted among 633 women. Data were collected using structured and pretested questionnaires. Visual inspection with acetic acid was performed for screening by trained and experienced midwives. The collected data were entered into Epi-Info-7 and analyzed using SPSS-21. Binary logistic regression model were conducted to determine the association between the study variables. Odds Ratio with its 95%CI was calculated and P- Value < 0.05 used as a cut off points to declare the significance.

RESULT: The prevalence of precancerous lesions of the cervix was 4.7% (95% CI: 3.2%, 6.5%). Being older age (AOR, 3.5; 95% CI: 1.32, 9.39), widowed/divorced (AOR, 7.96; 95% CI: 2.84, 22.32), polygamy (AOR, 4.4; 95% CI: 1.45, 13.47), wife inheritance (AOR, 5.83; 95% CI: 2.12, 16.4) and STI (AOR, 5.57; 95% CI: 2.07, 14.96) were significantly associated with precancerous lesions of the cervix.

CONCLUSION: Precancerous lesions of the cervix are prevalent in the study area, which has public health importance. Awareness creation on the associated factors and screening service should be strengthened.

KEY WORDS: Prevalence, rural, cancer, cervix

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INTRODUCTION

Cancers that originate in the female reproductive system are called women's reproductive cancers, which affect the cervix, breast, ovaries, vagina, vulva and endometrium[1,2]. Cervical and breast cancer are the leading cancers among women in developing countries[3]. Of all types of cervical cancer, squamous cell carcinoma (SCC) is the most common and account for about 80% to 90% of cancers[3,4]. It is estimated that 80% of cervical cancer cases and 95% of cervical cancer mortality occur in less developed countries, including Ethiopia, due to lack of information, early detection, and access to treatment facilities [5,6]. In less developed countries, including Ethiopia, most women who develop cervical cancer live in rural areas, though the exact prevalence is not yet detected[7, 8].

Ninety-nine percent of cervical cancer is caused by sexually transmitted infections (STIs) with human papilloma virus (HPV) the most common viral infection of the reproductive tract[9,10]. The peak of HPV infection in women occurs in the late teens and early twenties following sexual exposure[11]. However, studies showed precancerous cervical cancer lesion is also common during the late reproductive age groups[11,12]. Marital status[13] having multiple sexual partners[11,14] and education[15] is consistently associated with cervical cancer. The cultural practice of wife inheritance which is a practice whereby the brother of the deceased husband takes the widow on as his wife is significantly associated with cervical cancer[16].

Cervical cancer is potentially preventable using effective screening program because knowing the prevalence of the disease can lead to a significant reduction in the morbidity and mortality associated with it[15-18]. The World Health Organization (WHO) recommended screening programs for women between 30 and 49 years by visual inspection with acetic acid (VIA) which is the simplest, most efficient and cost-effective screening technique in low-resource countries for reducing the incidence rate of cervical cancer cases and mortality from the case[19]. Accordingly, Ethiopia has put in place a strategic plan to reduce cancer incidence and mortality by 15% by 2020. This ambitious plan aimed to reach 50% of the population with 80% coverage of VIA to detect precancerous cervical lesions among non-symptomatic women aged 30-49[9]. However, there is insignificant practical action to address the women of rural communities in Ethiopia and many of research findings and screening services aimed to detect the prevalence of cervical cancer were based on secondary and tertiary health care facilities located in urban settings [9,20, 21]. Hence, this study was aimed at assessing the prevalence of precancerous lesions of the cervix and associated factors among women of age 30-49 years found in the rural community of the study area.

METHOD AND MATERIALS

The study was conducted in Sude district, Arsi Zone of Oromia Region, Ethiopia. Sude district is located in South East of Ethiopia 217km far from Addis Ababa (the capital city of Ethiopia). The projected total population of the district was 192,797 according to the CSA of Ethiopia estimates of 2019 of which 42, 665 were women of reproductive age group and 20,973 were estimated between the ages of 30-49 [22]. Early marriage, early sexual activity, multi-parity, wife inheritance, and polygamy are highly prevalent in the district .

A community based cross-sectional study was conducted using quantitative data collection method from December 2019 to January 2020. Women age 30-49 years and residents of the study area for six and above months were included in the study.

A single population proportion formula was used to estimate the sample size using the prevalence of precancerous cervical cancer lesion in rural part of Ethiopia to be 50% in the absence of data at the community level, a confidence level of 95% and a 5% margin of error. Considering 10% possible non-response rate and design effect of 1.5, a minimum of 633 samples was calculated.

From all rural kebeles (the lower administrative

unit in government structure) in the district, seven were selected by the simple random sampling method. Sampling frame for the selected kebeles was prepared from the family folder found in health posts in consultation with Health Extension Workers (HEWs) and administrators in their respective kebeles. Then the total sample size was proportionally allocated to the number of women age 30-49 years. Finally, computer generated random number table method was used to select women for an interview and screening (Figure 1).

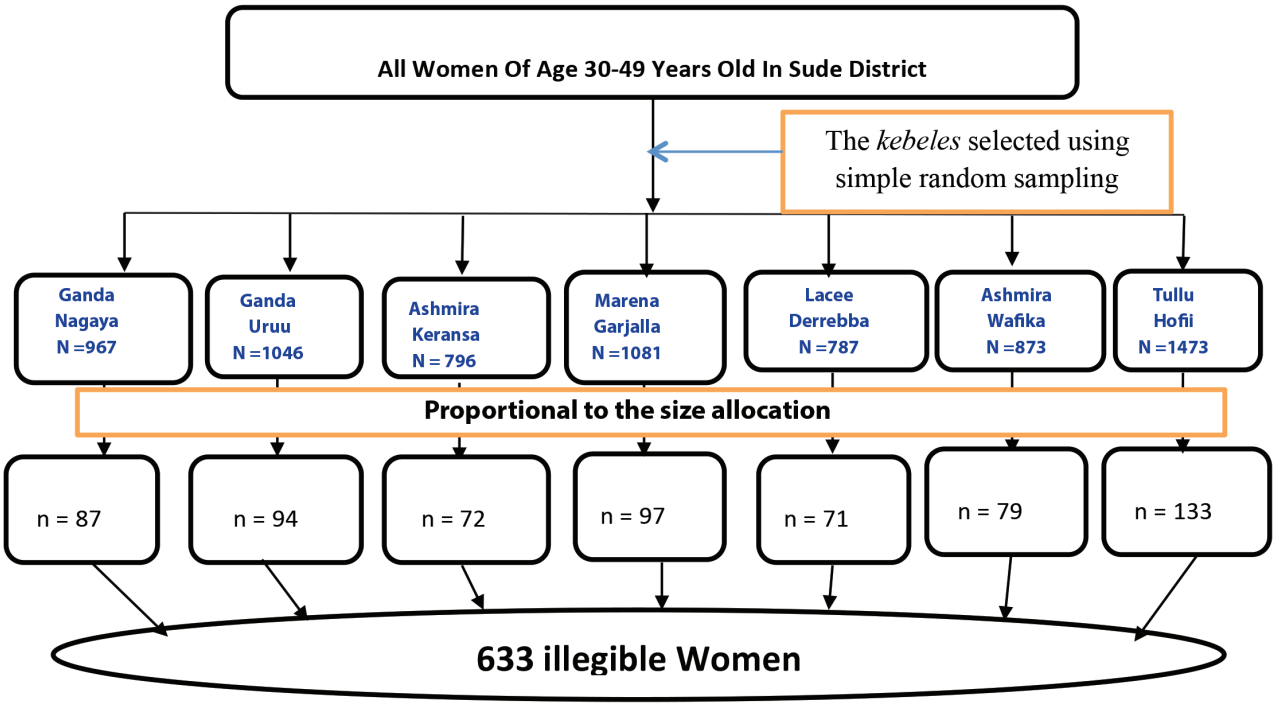

Figure 1: Schematic presentation of sampling procedure, Sude district, Oromia Region, Ethiopia, 2020.

A semi-structured questionnaire was used to collect data. Six trained Health Extension Workers and three midwife nurses administered a questionnaire using face-to-face interviews. The data collection was supervised by two trained and experienced Health Officers.

Screenings were done at each health post in the randomly selected kebeles by the trained and experienced midwives. For the procedure, un-lubricated speculum was inserted into the vagina and the cervix visualized using a focus lamp to identify the Squamous-Columnar Junction (SCJ). After cleaning away any excess mucus using dry sterile gauze, a five percent acetic acid solution of five milliliters for each client was applied to the cervical Oss at Squamous-Columnar Junction for visual inspection with acetic acid. The findings were visible one minute after application of acetic acid. Indeed the standard operational procedure (SOP) to be followed for cervical cancer screening was strictly followed. The collected data were entered and cleaned using Epi-Info version 7 and exported to SPSS version 21 for analysis. Principally, binary logistic regression model was used to show the association between the study variables and controlling the confounding factors. Variables having p-value ≤ 0.25 in the bivariable analyses were selected and entered into a multiple logistic regression model to control the confounding effect amongst the variables. Odds ratio with 95%

confidence intervals (CI) were computed. The statistical significance was declared with p-value < 0.05 in the final model. All the assumptions of the analysis were checked to be satisfied. Positive VIA Result: If these changes are seen in the transformation zone and have well-defined borders lasting for more than one minute[7].

RESULTS

A sample of 633 women was planned for the study and all completed the questionnaire making the 100% response rate. The mean (+SD) age of the study participant was 36.2 (+5.2) years. The majorities, 505 (79.8%) were Muslim followed by Christians 128 (20.2%).. The predominant ethnic groups were Oromo, 559 (88.3%) followed by Amhara, 74 (11.7%). The majority of the respondents 564(89.1%) were currently married. About 464(73.3) never attended formal education and 553(87.4) were housewives by occupation (Table 1).

Out of all screened study participant, 30 (4.7%) [95% CI: 3.2%, 6.5%] of them were found to be positive for a VIA test result. Among those found to be positive for a VIA test, two of them had a larger lesion suspicious for invasive cervical cancer and were sent to hospital for further investigation and treatment (Figure 2).

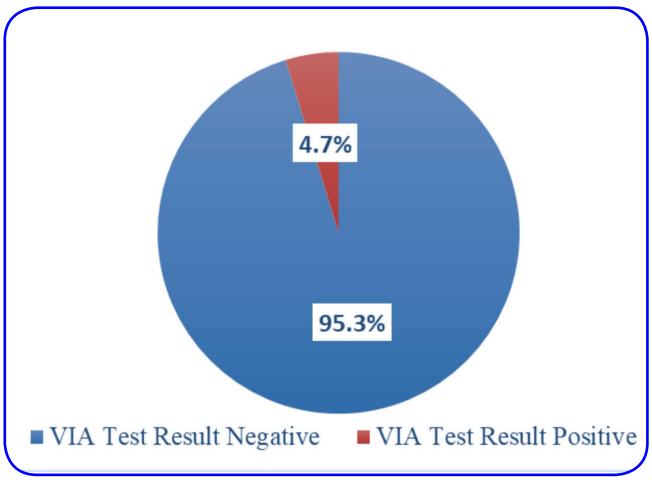

Figure 2: The prevalence of precancerous lesions of the cervix in Sude district, Arsi zone of Oromia Region, Eastern Ethiopia, 2020.

Table 1: Socio-demographic characteristics of study participants found in Sude district, Arsi zone, Oromia Regional state, Eastern Ethiopia, 2020.

Variables	Response Category	Frequency	Percentage (%)
Age	≤ 35	172	27.2(%)
	36-40	222	35.1(%)
	≥41	239	37.8(%)
Religion	Muslim	505	79.8(%)
	Christian	128	20.2(%)
Ethnicity	Oromo	559	88.3(%)
	Amhara	74	11.7(%)
Marital Status	Married	564	89.1(%)
	Widowed/Divorced	69	10.9(%)
Educational Status	Never attended formal education (Illiterate)	464	73.3(%)
	Literate	169	26.7(%)
Occupation	House Wife	553	87.4(%)
	Others*	80	12.6(%)

NB: Others include : *Daily laborer, trader, farmer and employ.

Table 2: Factors associated with precancerous lesions of the cervix among study participants in Sude District, Arsi Zone of Oromia Region, Eastern Ethiopia, 2020

Variables with category	VIA Test Result		COR (95% CI)	AOR (95% CI)
	Negative No (%)	Positive No (%)		
Age category				
≤ 35 years	281(96.6)	10(3.4)	1:00	1:00
36-40 years	194(99.5)	1(0.5)	0.15 (0.02, 1.14)	0.21(0.02,1.928)
≥ 41 years	128(87.1)	19(12.9)	4.17 (1.89, 9.23)	3.52(1.32, 9.39) *
Marital status				
Married	549(97.3)	15(2.7)	1:00	1:00
Widowed and Divorced	54(78.3)	15(21.7)	10.17(4.72, 21.92)	7.96 (2.84,22.32) **
Occupation				
House wife	537(97.1)	16(2.9)	1:00	1:00
Others	66(82.5)	14(17.5)	7.12(3.33, 15.25)	2.64(0.32, 21.63)
Age at first menses				
≤15 yrs.	521(96.3)	20(3.7)	3.17(1.44, 7.03)	0.64 (0.22, 1.90)
16-20 yrs.	82(89.1)	10(10.9)	1:00	1:00
Age at first marriage				
≤15 yrs.	71(86.6)	11 (13.4)	1.39(0.56, 3.58)	0.53(0.15, 1.94)
16-20 yrs.	451(97.8)	10 (2.3)	0.20(0.08, 0.51)	0.17 (0.05, 0.58)
≥ 21 yrs.	81(90.0)	9 (10)	1:00	1:00
Have more than one sexual partner				
No	479 (97.2)	14 (2.8)	1:00	1:00
Yes	124 (88.6)	16(11.4)	4.42(2.09, 9.29)	2.76(1.03, 7.36) *
Husband have wife other than you (Polygamy)				
No	554 (96.7)	19 (3.3)	1:00	1:00
Yes	49 (81.7)	11 (18.3)	6.55(2.95, 14.54)	4.42(1.45, 13.47) *
Had history of inheritance				
No	497(97.5)	13(2.5)	1:00	1:00
Yes	106(86.2)	17(13.8)	6.13(2.89, 13.01)	5.83(2.12, 16.4) **
Had history of pelvic infection				
No	510(97.3)	14(2.7)	1:00	1:00
Yes	93(85.3)	16(14.7)	6.27(2.96, 13.28)	2.74(0.89, 8.48)
Had history of STD/STI				
No	527(97.2)	15(2.8)	1:00	1:00
Yes	76(83.5)	15(16.5)	6.93(3.26, 14.75)	5.57(2.07, 14.96) **

N.B: * P< 0.05, ** P< 0.01, ***P< 0.001

*** Others incelude, daily labourer, trader, farmer and employee**

DISCUSSION

In this study, the prevalence of precancerous lesions of the cervix was found to be 4.7%, indicating a significant public health problem among women of reproductive age found in this rural community. Similar reports were observed in Rwanda (5.9%) and Nigeria (4.8-14%)[13,23]. Certainly, the estimated prevalence of precancerous lesions of the cervix among the general population of Ethiopia is as high as 13.4% [12]. The difference might be the data taken from facilities-based screening report and the finding of the current study is purely a community-based screening report. It is comparable to the studies in the facility level in Ethiopia which showed 14.1 % in Debre Markos, 22.1% in south Ethiopia among HIV- infected women, and 12.9% in Jimma town [5, 10, 24]. The differences might be due to the study setting (community vs. facility) and the clinical background of the screened women.

Being an older age group had higher odds of developing precancerous lesions of the cervix. Similar results were observed in Addis Ababa, Ethiopia, which found the odds of older age (40±49 years) were 2.4 times higher risk compared to women less than 40 years [12]. This might be due to the practice of sexual intercourse for more years and having given birth at an early age [11].

Widowed/divorced women were at higher risk of developing precancerous lesions of the cervix. This is corroborated by the reports from Rwanda and Debire Markos, Ethiopia, which demonstrated both divorced and widowed women have increased risk of developing precancerous cervical cancer lesions [11,13]. This might be due to the fact that divorced and widowed women may have risky sexual behavior with multiple partners when compared to married women [11]. Also, a woman who has more than one sexual partner was more likely to have precancerous lesions of the cervix. This result is supported by the finding of a study conducted in Uganda [14]. The association between precancerous cervical cancer lesion and multiple sexual partner behavior was also shown in a study done in Addis Ababa, Ethiopia[11-13]. Similar findings were reported in Debre Markos, Ethiopia [11]. This might be presumably because an increase in the number of sexual partners and sexual activity raises the risk of HPV transmission and the chance of infection with human papilloma virus (HPV) [11].

Women in polygamy were at higher risk of developing precancerous lesions of the cervix supporting the findings from Southwest Ethiopia[11]. This association is plausible given the women have a higher risk of acquiring HPV infection, presumably because of an increase in the number of the sexual partners [5]. Women who had a history of inheritance in their lifetime were more likely to develop precancerous cervical cancer lesion, supporting findings from Adama town, Ethiopia[11]. The possible justification could be that as the number and chain of sexual partner's increases, the risk of acquiring the HPV infection, the causative agent for precancerous lesions of the cervix, will increase. Similarly, women who had a history of STI were more likely to develop precancerous lesions of the cervix. It is consistent with findings from Adama, Ethiopia [9] and Yirgalem Hospital, south Ethiopia [10]. The association could be the result of HPV, which is the common cause of both STI and precancerous lesions of the cervix [10].

CONCLUSION

The prevalence of the precancerous lesions of the cervix in the study area was 4.7%. Older age of respondents, widowed and divorced, history of inheritance, having history of more than one sexual partner, polygamous husband, and having a history of STIs were associated with precancerous lesions of the cervix. Strategies like awareness creation and screening service at primary health care unit level is required. Also, special attention should be taken by the concerned bodies, including government, nongovernmental organizations, and other collaborative stakeholders to prevent the associated factors of precancerous lesions of the cervix.

LIMITATIONS

The study was conducted using a cross sectional study design which might not be possible to ascertain the direction of causality. Qualitative method was not considered as it is better in obtaining in-depth information about a sensitive issue and to complement the current quantitative findings. Moreover, social desirability bias is inevitable as the study involved a sensitive matter.

Ethics approval and consent to participate

The study was approved by the Ethics Review Board of Adama Hospital Medical College. The purpose and importance of the study were explained to the participants. Confidentiality and privacy were strictly assured. All the study participants were informed that they could participate voluntarily and that they had a full right to participate or decline from participating in the study at any time. Oral informed consent was obtained from all participants. For women with minor lesions, a treatment using cryotherapy was performed on the spot and those women found with larger lesion were referred to a nearby hospital for further investigation and treatment. Those women with cervical precancerous lesions and treated with cryotherapy were recommended to make follow up after three months for clinical evaluation and one year later for re-screening at their respective facilities where screening and treatment services are provided.

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COMPETING INTEREST

The authors have declared that no competing interests exist.

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