



Assessment the Prevalence and Associated Factors with Uptake of Visual Inspection of Acetic Acid for Cervical Cancer Screened in Eastern Ethiopia

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Abstract

Background: Cervical cancer is one of the most preventable and treatable forms of cancer, as long as it is detected early and managed effectively. Cervical cancer is arising from the cervix, and it is due to the abnormal growth of cells. The main objective of this study was assessment the prevalence and associated factors with the uptake of visual inspection of acetic acid for cervical cancer screened in Eastern Ethiopia which implemented in statistical package IBM SPSS version 20.

Methods: Cross-sectional study design was used from the cervical cancer patients in Jugel Hospital, Harar, Ethiopia. This study used a chi-square test of independence, and risk ratio to compare the risk of cervical cancer for the associated predictors which were a history of sexually transmitted infections, and human immunodeficiency test results.

Results: This study shows immunodeficiency test results, and sexually transmitted infections associated with cervical cancer screened results at alpha equal to 5%. Study shows women who had a history of sexually transmitted infections (54%) and women who lived with human immunodeficiency (61.1%). The risk of cervical cancer in women who lived with human immunodeficiency appears to be 1.075 times higher than the risk in women who lived without human immunodeficiency. The prevalence rate measures the number of women in the study subjects who have cervical cancer at a given time was 43%.

Conclusion: This finding concludes the risk to develop cervical cancer in women who lived with human immunodeficiency and those who had a history of sexually transmitted infections were high. The 43% of the women who participated in this study were affected by cervical cancer from December 2018 to December 2020. Hence, intervention should be given to the patients who lived with human immunodeficiency and those had a history of sexually transmitted infections for minimizing the risk.

Keywords: Cervical cancer; Chi-square test; Risk ratio; Prevalence rate; Jugel hospital; Ethiopia

Abbreviations

AIDS: Acquired Immunodeficiency Syndrome; HIV: Human Immunodeficiency Virus; CD4: Cluster of Differentiation Four; STIs: History of Sexual Transmitted Infections; SSA: Sub-Saharan Africa; VIA: Visual Inspection of Acetic Acid; HPV: Human Papillomavirus; mm³: Cubic Millimeter

Introduction

Cancer is the fourth most common cancer in this world, and it estimated the incidence of 570,000 new cases and approximately cervical 311,000 new associated deaths in 2018. Cervical cancer accounts for 20.8% of all cancers in women, and 14.2% of all cancer-related deaths in women in Sub-Saharan Africa (SSA) [1].

In developed countries, the incidences of cervical cancer have been reduced by 70% to 90%. The high burden of cervical cancer in developing countries, like Ethiopia, because of the presence of the high prevalence of HPV infection and the lack of effective cervical cancer screening programs [2].

Opportunistic screening programs for cervical cancer need substantial costs involved in providing the infrastructure, manpower, consumables, follow-up, and surveillance. Many low-income developing countries, including most in sub-Saharan Africa, have neither the resources nor

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the capacity for their health services to organize and sustain any kind of screening programs [3].

Routine cervical cancer screened has been shown to greatly reduce both the number of new cervical cancers diagnosed each year and the number of deaths result from the disease. In developing countries, cervical screening knowledge and screening uptake are very low. In Ethiopia, the coverage of cervical cancer screening is only 1% [4]. Early detection, by screening all women in the target age group, followed by the treatment of detected precancerous lesions can prevent the majority of cervical cancers. Cervical cancer screening should be performed at least once for every woman in the target age group which was 30 to 49 years [5].

The relative rarity of the disease in the unmarried and higher incidence for married. This higher incidence was shown to be mainly in widows less than 50 and divorced women, suggesting that it is related to the association of the disease with a number of sexual partners [6]. Cervical cancer was significantly associated with marital status and level of education ($p < 0.05$) [7]. Women with a CD4 count of 650 per mm^3 or more also had a lower risk of screening positivity or invasive cancer diagnosis, and the prevalence of screening positive lesions or cervical cancer was lower than most previous reports from Africa. HIV-positive Nigerian women were at a marginally increased risk of cervical pre-cancer and cancer [8]. History of sexually transmitted diseases was associated with precancerous cervical cancer lesions [9].

Methods and Materials

Study area

The data for this study was collected from Jugla Hospital, Harar, Ethiopia. Harar is the capital city of Harari national regional state. It is found in eastern Ethiopia, and far 525 kilometers from Addis Ababa. Jugel Hospital is found in this city. This hospital serves as all people who came from different surrounding areas.

Data description and study design

The cross-sectional study was used to assess the prevalence and associated factors with the uptake of visual inspection of acetic acid for cervical cancer screened in Eastern Ethiopia. This study used secondary data from cervical cancer patients from Jugel Hospital. The target populations of this study are all cervical cancer patients who attend Jugel Hospital from December 2018 to December 2020. In this study, 483 samples were considered to collect the data, and several potential explanatory variables were considered in this study. The description of these covariates is presented.

Method of data analysis

An exploratory analysis was conducted to obtain descriptive statistics like percentage of the study variables, and analyses the relationship between cervical cancer and their associated factors. This study was used as a chi-square test to determine the association between cervical cancer and their associated factors with P-value ≤ 0.05 was considered.

The prevalence rate measures the number of people in the study subject who have cervical cancer from December 2018 to December 2020 attained at Jugel Hospital. The analysis was performed using the statistical package IBM SPSS version 20. The prevalence rate measures the proportion of a population with a certain condition at a given point in time. The prevalence rate can be determined by conducting a cross-sectional study.

$$\text{Prevalence rate} = \frac{\text{All persons with a specific condition at one point in time} \times 100}{\text{Average population}} \quad [1]$$

A risk ratio was used to compare the risk of cervical cancer with the associated potential explanatory variables that were considered in this study. A risk ratio, or relative risk, compares the risk of some health-related event such as disease or death in two groups.

$$\text{Risk Ratio} = \frac{\text{Risk for group of primary interest}}{\text{Risk for comparison group}} \quad [2]$$

The chi-square test of independence is used to determine the significant relationship between two nominal (categorical) variables. The frequency of each category for one nominal variable is compared across the categories of the second nominal variable. The data can be displayed in a contingency table where each row represents a category for one variable and each column represents a category for the other variable. The chi-square test of independence can be used to examine this relationship, and the null hypothesis for this test is that there is no relationship between the two categorical variables [10].

$$\chi^2 = \sum \frac{(O - E)^2}{E} \quad [3]$$

Where: χ^2 = the value of chi square, O = the observed value, E = the expected value

$\sum(O - E)^2$ = all the values of (O-E) squared then added together

$$\text{Expected Frequency} = \frac{\text{Row total} \times \text{Column total}}{\text{Grand total}} \quad [4]$$

Results and Discussion

The majority of participants were less than 30 and above 40 ages (46.0%), married (58.6%), of literate (30.8%), and less than 5 numbers of births (63.4%). The results were show women who had a history of sexually transmitted infections (54%) and women who lived with HIV/AIDS (61.1%).

The HIV/AIDS test result, and sexually transmitted infections associated with cervical cancer screened results at alpha equal to 5% that is less than or equal to the probability of the alpha error rate. This study concludes that there is a relationship between the HIV/AIDS test result and sexually transmitted infections.

Therefore, the risk of cervical cancer among women who lived with HIV/AIDS is 0.86 or 86% and the risk of women who lived without HIV/AIDS is 0.80 or 80%. Moreover, the risk ratio for women who lived with HIV/AIDS as compared to women who lived without HIV/AIDS is equal to 1.075. Since the risk of cervical cancer in women who lived with HIV/AIDS appears to be 1.075 times higher than the risk in women who lived without HIV/AIDS. This result is linked with the previous study [8].

The risk of cervical cancer among women who had a history of sexually transmitted infections is 0.845 or 84.5% and the risk of women who had no history of sexually transmitted infections is 0.708 or 70.8%. Moreover, the risk ratio for women who had a history of sexually transmitted infections as compared to women who had no history of sexually transmitted infections is equal to 1.19. Therefore, the risk of cervical cancer in women who had a history of sexually transmitted infections appears to be 1.19 times higher than the risk in women who had no history of sexually transmitted infections. This finding is consistent with the study by [9].

From results the prevalence rate measures the number of women in the study subjects who have cervical cancer at a given time was 43%. That means 43% of the women who participated in this study were affected by cervical cancer from December 2018 to December 2020.

Conclusion

This study has highlighted several important findings of the assessment of prevalence and associated factors with the uptake of visual inspection of acetic acid for cervical cancer screened in Eastern Ethiopia. HIV/AIDS test result and sexually transmitted infections associated with cervical cancer screened results at alpha equal to 5%. This study showed the risk to develop cervical cancer in women who lived with HIV/AIDS and those who had a history of sexually transmitted infections were high. The prevalence rate of cervical cancer patients in Eastern Ethiopia from December 2018 to December 2020 was 43%.

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