Prevalence and predictors of cervical cancer screening among reproductive women in Ghana: Evidence from the 2022 Ghana Demographic and Health Survey

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Extended abstract

Introduction: Cervical cancer is an important global public health issue affecting the health and wellbeing of women. Globally, it is the fourth most common cancer in women and the seventh most common cancer (Bruni et al., 2023; Yimer et al., 2021). Globally, about 604,127 women are diagnosed with cervical cancer, and 341,831 die from the condition as of 2020 (Bruni et al., 2023). Cervical cancer disproportionately affects women from poor households, with at least 80% of deaths occurring in developing countries (Calys-Tagoe et al., 2020). However, the disease is preventable by early detection through regular screening. Screening seeks to identify precancerous cellular changes on the cervix that may become cervical cancer if they are not appropriately treated (Yimer et al., 2021). Evidence shows that most patients in developing countries present the disease at health facilities in the late stages, making it difficult to treat (Dunyo et al., 2019; Hull et al., 2018). The late presentation could be a result of several factors, such as delay in screening, poor knowledge about the disease, lack of awareness of the screening process, and weak healthcare systems, where not all health facilities have screening equipment (Calys-Tagoe et al., 2020; Morema et al., 2014).

According to Bruni et al. (2023), in Ghana, it is estimated that 27.4 per 100,000 women were diagnosed with cervical cancer, while 17.8 per 100,000 women died from cervical cancer as of 2020. In 2001, the screening and testing of cervical cancer in Ghana were introduced and fully incorporated into the National Reproductive Health Service Delivery Guidelines (MoH, 2011; JHPIEGO, 2008). Yet, evidence shows that few women undergo screening to know their status (Ayanore et al., 2020; Calys-Tagoe et al., 2020). For instance, Ayanore et al.'s (2020) study reported that 12.0% of women aged 18 years or older underwent cervical cancer screening, while Calys-Tagoe et al.'s (2020) study revealed that 8.3% of women aged 18 years or older underwent cervical cancer screening.

There are studies on cervical cancer prevention and treatment in Ghana (Binka et al., 2019; Ampofo et al., 2020). However, few of these studies have examined the factors influencing cervical cancer screening using a nationally representative sample (Calys-Tagoe et al., 2020). Among the few studies is that of Calys-Tagoe et al. (2020), which used the World Health Organization's (WHO) multi-country Study on AGEing and adult health (SAGE) wave 2 conducted between 2014 and 2015 in Ghana. Calys-Tagoe et al.'s (2020) study was conducted almost a decade ago, and several factors regarding cervical cancer screening have changed. The current study, therefore, hinges on the socioecological framework to examine the prevalence and predictors of cervical cancer screening among reproductive women in Ghana using a recent dataset.

Methods: This study used secondary data from the 2022 Ghana Demographic and Health Survey (GDHS). The GDHS, a survey of a representative sample of the country's population, is usually conducted every five years by the Ghana Statistical Service. Cervical cancer screening was measured by whether or not women had ever been tested for cervical cancer by a healthcare provider. Pearson's chi-square and a binary logistic regression were used to examine the predictors of cervical cancer screening among women in Ghana. Variables were considered statistically significant at a 95% confidence interval (p-value < 0.05).

Results: The prevalence of cervical cancer screening among women was 4.6%. Women's age, education, religion, ecological zone, household wealth quintile, smoking status, alcohol consumption status, parity, and age at first sex were significant predictors of cervical cancer screening (Table 1). Being aged 25-34 (aOR = 2.152; 95% CI = 1.530 - 3.027) and 35-49 (aOR = 3.434; 95% CI = 2.305 - 5.115), residing in the Northern ecological zone (aOR = 1.970; 95% CI = 1.323 - 2.935), having secondary (aOR = 1.825; 95% CI = 1.183 – 2.818) and higher (aOR = 4.642; 95% CI = 2.883 - 7.473) education, belonging to a middle (aOR = 1.831; 95% CI = 1.240 – 2.704) and rich (aOR = 1.940; 95% CI = 1.311 – 2.871) households, ever smoked cigarette (aOR = 2.146; 95% CI = 1.131 – 4.073), consumed alcohol in the past month (aOR = 1.324; 95% CI = 1.020 – 1.718), having a child (aOR = 1.618; 95% CI = 1.140 – 2.298) and age at first sex (aOR = 1.034; 95% CI = 1.013 – 1.055) were associated with a higher likelihood to have ever tested for cervical cancer.

Also, women who were traditionalists (aOR = 0.098; 95% CI = 0.022– 0.434) had a lower likelihood of having ever tested for cervical cancer.

Table 1: Predictors of cervical cancer screening

	Odds Ratio	95% CI		P-value
Age				
15-24 years (RC)				
25-34 years	2.152	1.530	3.027	0.000
35-49 years	3.434	2.305	5.115	0.000
Ecological zone				
Coastal (RC)				
Middle	1.312	0.974	1.768	0.074
Northern	1.970	1.323	2.935	0.001
Education				
No education (RC)				
Primary	1.252	0.793	1.975	0.334
JSS/Middle	1.214	0.830	1.775	0.317
Secondary	1.825	1.183	2.818	0.007
Tertiary	4.642	2.883	7.473	0.000
Religion				
Christian (RC)				
Muslims	1.015	0.739	1.393	0.927

Traditionalist	0.098	0.022	0.434	0.002
No religion	0.574	0.162	2.036	0.390
Household wealth quintile				
Poor (RC)				
Middle	1.831	1.240	2.704	0.002
Rich	1.940	1.311	2.871	0.001
Ever smoked cigarette				
No (RC)				
Yes	2.146	1.131	4.073	0.020
Consumed alcohol in the past month				
No (RC)				
Yes	1.324	1.020	1.718	0.035
Parity				
0 (RC)				
1 child	1.618	1.140	2.298	0.007
2-3 children	1.372	0.998	1.885	0.051
4-5 children	1.250	0.820	1.907	0.299
6 or more children	1.559	0.959	2.534	0.073
Age at first sex	1.034	1.013	1.055	0.001

aOR = Adjusted Odds Ratio, CI = Confidence Interval, RC = Reference Category
Source: 2022 GDHS

Note: Place of residence, having National Health Insurance, distance to a health facility, and eating unhealthy diet were not statistically significant. Hence, they were not included in Table 1.

Conclusion: The prevalence of cervical cancer screening is low in Ghana, and there is an urgent need to embark on public health education about cervical cancer, including the benefits of cervical cancer screening, to increase its patronage. Also, public health education about cervical cancer should target women living in rural areas, those who are traditionalists, and those who have no national health insurance since they have a lower probability of ever testing for cervical cancer.

Keywords: Cervical cancer screening, Ghana, Prevalence, Predictors, 2022 Ghana Demographic and Health Survey

Reference

Ampofo, A. G., Adumatta, A. D., Owusu, E., & Awuviry-Newton, K. (2020). A cross-sectional study of barriers to cervical cancer screening uptake in Ghana: An application of the health belief model. *PloS ONE*, *15*(4), e0231459.

Ayanore, M. A., Adjuik, M., Ameko, A., Kugbey, N., Asampong, R., Mensah, D., Alhassan, R.K., Afaya, A., Aviisah, M., Manu, E. & Zotor, F. (2020). Self-reported breast and cervical cancer screening practices among women in Ghana: predictive factors and reproductive health policy

implications from the WHO study on global AGEing and adult health. *BMC Women's Health*, *20*, 1-10.

Binka, C., Nyarko, S. H., Awusabo-Asare, K., & Doku, D. T. (2019). Barriers to the uptake of cervical cancer screening and treatment among rural women in Ghana. *BioMed Research International*, 2019, 1-8.

Bruni, L., Albero, G., Serrano, B., Mena, M., Gómez, D., Muñoz, J., & De Sanjosé, S. (2023). *ICO/IARC Information Centre on HPV and Cancer (HPV Information Centre). Human Papillomavirus and Related Diseases in the World. Summary Report.* Retrieved from: https://hpvcentre.net/statistics/reports/XWX.pdf

Calys-Tagoe, B. N., Aheto, J. M., Mensah, G., Biritwum, R. B., & Yawson, A. E. (2020). Cervical cancer screening practices among women in Ghana: evidence from wave 2 of the WHO study on global AGEing and adult health. *BMC Women's Health*, *20*(1), 1-9.

Dunyo, P., Effah, K., & Udofia, E. A. (2018). Factors associated with late presentation of cervical cancer cases at a district hospital: a retrospective study. *BMC Public Health*, *18*, 1-10.

Hull, R., Mbele, M., Makhafola, T., Hicks, C., Wang, S. M., Reis, R. M., ... & Dlamini, Z. (2020). Cervical cancer in low and middle-income countries. *Oncology Letters*, *20*(3), 2058-2074.

JHPIEGO. (2008). *Outcomes Research Study on Cervical Cancer Prevention and Treatment: Results from Ghana*. Baltimore MD: JHPIEGO.

Ministry of Health. (2011). *National Strategy for Cancer Control in Ghana 2012–2016*. Accra: Ministry of Health.

Morema, E. N., Atieli, H. E., Onyango, R. O., Omondi, J. H., & Ouma, C. (2014). Determinants of cervical screening services uptake among 18–49 year old women seeking services at the Jaramogi Oginga Odinga Teaching and Referral Hospital, Kisumu, Kenya. *BMC Health Services Research*, *14*, 1-7.

Yimer, N. B., Mohammed, M. A., Solomon, K., Tadese, M., Grutzmacher, S., Meikena, H. K., Alemnew, B., Sharew, N. T. & Habtewold, T. D. (2021). Cervical cancer screening uptake in Sub-Saharan Africa: a systematic review and meta-analysis. *Public Health*, *195*, 105-111.