



Knowledge of Cervical Cancer and Cervical Cancer Screening

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Abstract: The purpose of the study is to assess knowledge of cervical cancer and cervical cancer screening. The study employed a cross-sectional quantitative study. Multistage sampling was used in selecting 433 women from the Ada East municipality. A structured questionnaire was used to collect quantitative data on participants. Data was entered with Microsoft Excel. SPSS software version was used to perform both descriptive and inferential statistical analysis. This study found that whereas 16.25% of the surveyed women had appropriate awareness about the condition, 83.75% had insufficient information. 23.8% of those polled think the HPV vaccine prevents cervical cancer. Women in Burkina Faso's capital between the ages of 20 and 50 were asked about their knowledge and opinions regarding cervical cancer screening. 840 women, ranging in age from 20 to 50, were asked about their knowledge, attitudes, and practices related to cervical cancer. Only 8.5% of them had heard of the human papillomavirus, and 64.2% had heard of cervical cancer. Additionally, there were differences in the respondents' evaluations of cervical cancer's severity. The respondents' degree of information regarding cervical cancer is also the same. The intention to be screened was affected by obstacles and the Pap test's rigor, as well as by education and employment level. However, the study recommends that the Ghana Health Service prioritize cervical cancer awareness campaigns and education programs in the Ada East District. These programs should be tailored towards increasing the knowledge of women in the district about cervical cancer and the importance of screening.

Keywords: Cancer, cervical cancer, cancer screening

1. INTRODUCTION

The cervix is the lower end of the uterus, which is also called the womb. Cancer of the cervix is a slow-growing tumour that begins in the cervix of women. Human papilloma virus (HPV), a pathogen spread through sex contact, is the primary causative organism for the disorder. Prostitution, smoking, co-morbidities, and a low socioeconomic position are risk factors for the illness. These have a recognized connection to cervical cancer. (Almalki, 2016). In the early stages of the disease, the woman may not experience any signs and symptoms (Chun Christina, 2019). However, in its advanced phase, discomfort during sexual intercourse, woman with cervical

cancer experience bleeding in between her menstrual periods, post-coital bleeding, unexplained abnormal vaginal bleeding if the woman is in her menopause, , vaginal discharge with associated strong odour that may be tinged with blood, and pelvic pain (ASCO, 2014).

Once the cancerous cells start to grow, these abnormal cells spread, and may invade the other parts of the body, causing devastating health risks (Chun Christina, 2019). Because of its slow-growing characteristic, this cancer is mostly diagnosed among middle-aged and menopausal women (Jabbari et al., 2019). It is known to be highly preventable and treatable when detected on its early stages. Sowunmi et al. (2018) agree that one-third of cancer cases are preventable and another third when detected early is manageable with palliative care. Cervical Cancer is the most common non-communicable disease and accounts for 12.5% of all deaths worldwide (Sowunmi et al., 2018). Although preventable, it is world's third most prevalent cancer occurring among women after breast and colorectal cancer (Arbyn et al., 2020). According to research by Hulll et al. (2020), poor nations account for more than 80% of all cervical cancer cases recorded as new and 85% of all associated fatalities. Cervical cancer prevalence and death have increased over time in low- and lower-middle-income countries (LLMIC), especially sub-Saharan Africa. According to Brey (2018), cervical cancer is the top cause of cancer-related mortality in LLMIC nations, with an age-standardized incidence and mortality rate per 100,000 women of 28.8 and 22.1, respectively. (Id et al., 2020). Although the introduction of preventive programs has brought improvements in incidence and deaths in the developed world over the past 20 years, there has not been a significant change in the same key indicators in poor resource settings.

(Hulll et al., 2020) estimate that, in Sub-Saharan Africa, 65–85% of cervical cancer patients are diagnosed at advanced stage and have poor treatment outcomes. The American Cancer Society (2019) therefore recommends that females between 21 and 29 years old should have a test every 3 years; while 30- to 65-year-old women should have it done every 5 years (Fontham et al., 2020). A cervical cancer-screening test can be done in various means: Pap smear (also known as conventional cytology), liquid based monolayer cytology, cervicography, speculography, human papillomavirus testing (HPV), and visual inspection with acetic acid (VIA). The use of Pap smear has been widely accepted globally. It is simple, cost-effective, and could promote a “screen and treat” mechanism that entails diagnosis and treatment at a single visit. However, comprehensive Pap smear screening-based programs have not been effectively implemented in most developing countries because in most of these settings, the test is often accessible to only a small proportion of women through private health care providers (Dike & O, 2017). In some of these places, the test is offered primarily to young women through maternal and child health clinics or family planning clinics where the population being screened generally is not at high risk. Therefore, these approaches have had little effect on morbidity and mortality in developing countries compared to most developed countries that has long implemented comprehensive Pap smear screening-based programs (WHO, 2012). Cervical cancer screening services in Ghana are not common and are restricted, as the test is done in few public health facilities in the country and is patronized by referrals and a few who know about Pap smears (Ebu et al., 2014).

2. METHODS

Study Design

Descriptive cross sectional study design was used. The study was quantitative. This is one of the suitable designs for determining the prevalence studies such as this proposed by (Dawson and Trapp 2004). This design is cheap and takes a short time. With cross sectional study design, there

is a measurement between variables both dependent and independent at a fixed point in time. In this design, there is appropriate description for relationships among phenomena at a fixed point in time (Owusu Adjah & Agbemafle, 2016)

Study Site

The study was conducted in the Ada East District of Ghana. Communities within the district were used. The Ada East district is one of the twenty-nine Metropolitan, Municipal & Districts in the Greater Accra Region. It is one of the rural districts in the Region. The entire district is situated in the Accra plains and the land is relatively flat. It has common boundaries with Ada West District on the west, North Tongu on the north and South Tongu on the East and the Atlantic Ocean to the south. The district has a surface area of approximately 332km².

The district has 28 health facilities made up of a hospital, three health Centres, one private clinic and twenty-three CHPS facilities distributed among the twenty-seven electoral areas. There are also about one hundred and sixteen communities. Ada sub-district has forty – seven communities, Kasseh Sub-district forty-seven communities and Pediatorkope sub has twenty-two Island communities. The district has not yet been caught up by the rapid urbanization of the peripheral areas surrounding the city of Accra though it has a very good transport system and roads to Accra.

Study Population

The target population for this study was women in the Ada East District

The study focused on women aged 25 and above, adhering to the American Cancer Society's recommended age for cervical cancer screening as cited by Fontham et al. in 2020. This age threshold was crucial for ensuring the relevance and effectiveness of the screening. Additionally, eligibility was extended to women residing in the district, emphasizing the geographical scope of the study. However, certain exclusions were necessary: women diagnosed with cervical cancer, those who had undergone a hysterectomy or had their cervix removed were not included, as screening in these cases is no longer necessary. Furthermore, pregnant women and those below the age of 25 were also excluded from the study, aligning with the established criteria to ensure the integrity and specificity of the research findings.

Sample size

In social surveys, resources, time, and finance are important in determining the coverage of samples. According to the Ghana Statistical Service, the total population of women in the district at least 25 years, as of May 2022 is 12,637. Because the population of interest is finite, the initial minimum sample size of participants was calculated using the Yamane' formula given as follows:

Using Yamane's formula, the sample size (n) was calculated out of the sample frame (N), using a confidence level of 95% and margin of error (α) of 0.05.

$$n = \frac{N}{1+N(\alpha)^2}$$

Where n = sample size

N = Sample frame

α = margin of error

The sample frame (N) shows the list of the respondents was selected for the study.

$$n = \frac{12,637}{1 + 112,637(0.05)^2}$$

$$n = \frac{12,637}{1 + 12,637(0.0025)}$$

$$n = \frac{12,637}{1 + 31.592}$$

$$n = \frac{12,637}{32.592} = 394$$

Adjusting for a 10% non-response rate gives, $0.1 \times 394 = 39$
 Therefore, the desired sample size for the study was $394 + 39 = 433$
 Therefore, a sample size of 433 respondents was used for this study.

Sampling technique

Sample according to Ary et al. (2014) is a proportion of the population. It is the part of the population selected for the survey. The sample is also a subset of the population (Bryman, 2012). The sample must be representative enough to be able to generalize the findings in the sample to the population. It is worth noting that the sample was identified because it is sometimes impractical to collect data from the whole population especially when the population large.

A multi-stage sampling method was used for this study. Firstly, out of 3 sub-municipals in the district: Ada-Foah, Kasseh and Peditorkope sub-district, 2 were selected purposively. Ada-Foah and Kasseh sub-districts were selected due to their proximity to the cervical cancer-screening center, as Peditorkope is a remote island, which is by default limited by distance to the district hospital. In the second stage, 10 communities within each of the selected sub-districts were selected in the next sampling stage using the simple random technique. The proportional allocation of participants for each sub-district was determined using the formula

$$n = \frac{n_j \times n_f}{N}$$

where, n_f = final sample size
 n_j = total number of houses each district
 N = total number of houses

Having determined the allocated number of households to be sampled per sub-district, a systematic sampling technique was used to select households within each sub-district. Systematic sampling is an extended implementation of probability sampling in which each member of the group is selected at regular periods to form a sample. The formula $\frac{N}{n}$ was used to obtain the sampling interval (k) were,
 N = the total number of households
 n = the estimated sample size.

A list of all households in the selected communities was made. The total population (N) was divided by the sample size (n) to get the sampling interval k . The first household was randomly selected by balloting. After that, every k^{th} household was visited, and women who meet the inclusion criteria in that household were recruited into the study. This was followed until the sample size was achieved.

Study variables

A study defines two variables: the dependent variable and the independent variables. In this study, the independent variables include social demographic factors, perceptions or perceived barriers, and health system related factors such as testing experience, cost of screening. The dependent variable is uptake of cervical cancer screening services

Data collection instrument

The study considered only primary source of data. An adapted semi-structured, questionnaire was employed to collect data from the participants. Section A of the data collection tool collected data such as age, occupation, educational background, religion, marital status and number of children, family history of cancer. Section B measured participants' knowledge on cervical cancer by asking definition, causes, clinical manifestations, danger signs, treatment, screening benefits, complications, and prevention of cervical cancer. Each correct answer was given a score of 1, while a wrong answer given a score of 0. The total knowledge score was then calculated and graded on a scale based on standards carried out in previous research, as follows: Good (≥ 7), medium (4–6) and poor (≤ 3). Sections C measure the participants' beliefs and perceptions about CC and screening using items based on constructs adapted from the Health Belief Model (HBM), as illustrated in the theoretical Framework. These included four subscales of HBM: perceived threat (a woman's perception about the chances of getting cervical cancer and beliefs concerning the severity of cervical cancer screening), perceived benefits, perceived barriers (psychosocial barriers, socioeconomic barriers, and healthcare system barriers), and cue for action. For each item, the respondents were asked to answer "Yes", "No" or "I don't know".

Data Collection procedure

The researcher recruited two data collectors to assist in the data collection process. They were trained for one day on the data collection process, how to avoid/ prevent errors, to keep privacy and confidentiality of respondents and other ethical issues.

Data Analysis

The data analysis procedure includes method of organizing, summarizing, and presenting the data in a convenient manner. After the data collection, data was reviewed for completeness, accuracy, and consistency. The data collected was organized, coded, and entered using Excel. Data analysis was done with Statistical Package for Social Sciences (IBM SPSS) software version 21.0. Data entry, data transformation and exploratory data analysis was carried out. The data analysis employed both descriptive and inferential statistics. The descriptive statistics included frequency counts, percentages, and other parameters to answer the research questions.

The analysis was divided into 3 categories descriptive, bivariate and multivariate analysis. The bivariate analysis (chi-square) was used to determine association between independent variables and cervical cancer screening uptake. Then, simple, and multiple logistic regressions was used to determine the predicting factors associated with cervical cancer screening among respondents. The level of significance was set at p-value of less than 0.05.

Ethical Considerations

Ethical clearance was sought from the Ghana Health Service Ethics Committee before the commencement of the study (GHS-ERC: 044/11/22). Permission was sought from community leaders. Written consent was obtained from each participant before being included in the study.

All information collected from the survey was kept confidential and safe. The anonymity and confidentiality of the study subjects were ensured by assigned numerical codes instead of names without any personal identifiers in the data collection, analysis, and the findings. Participants were informed that participation is voluntary and based on their willingness and they have the right to withdraw from the study at any point.

Quality Control

The questionnaire was pre-tested among women in the Pediatorkope, a non-participating sub-district to determine clarity of the questions and ensure quality of data. The pre-testing was done to confirm if it is suitable for the intended purpose. It enabled the researcher to redesign and modify the questionnaire for effective data collection and processing. It helped to ensure that questions asked were easy to understand and not ambiguous.

3. RESULTS

Descriptive Statistics

Table 1 Socio-Demographic Characteristics

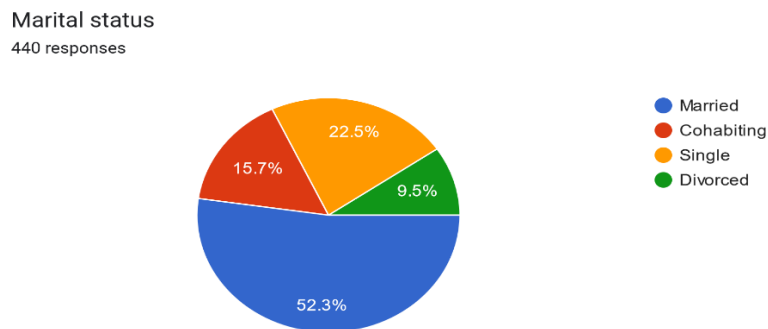
Demographic Characteristics	Frequency (N)	Percentage (%)
Marital Status		
Single	98	22.4
Married	235	53.8
Cohabiting	63	14.4
Divorced	41	9.4
Number of Children		
0	97	22.2
1	98	22.4
2	140	32.0
3	57	13.0
4+	45	10.3
Religion		
Muslim	73	16.7
Christian	310	70.9
Traditionalist	54	12.4
Education		
Basic education	67	15.3
Diploma certificate	72	16.5
Master's degree	28	6.4
No education	49	11.2
Senior high level	107	24.5
Undergraduate degree	114	26.1
Employment Status		
Yes	277	63.4
No	160	36.6
Monthly income		
Not disclosed	43	9.8
1001 – 2000	67	15.3

2000+	46	10.5
500 – 1000	198	45.3
Up to 500 cedis	83	19.0
Diagnosed with any type of cancer?		
Yes	35	8.0
No	402	92.0
Do you have a chronic illness?		
Yes	37	8.5
No	400	91.5

Source: Field Study, 2023

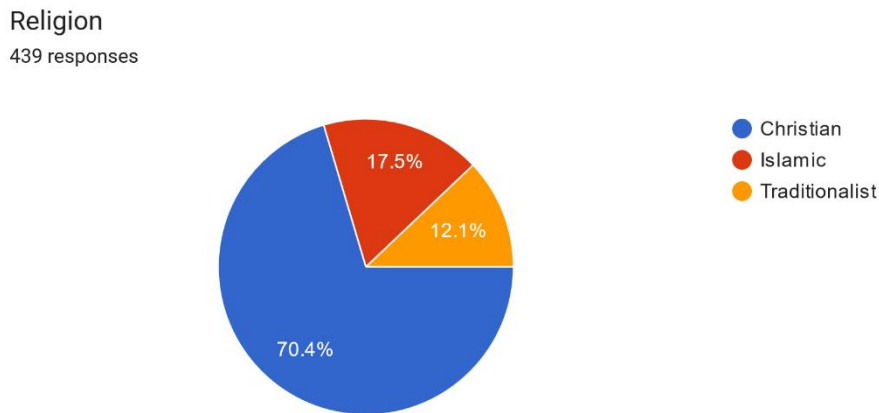
According to the table, 98 (22.4%) of the survey respondents were single, leaving 235 (53.8%) of them married, 63 (14.4%) cohabiting, and 41 (9.4%) divorced.

Figure 1 Marital Status



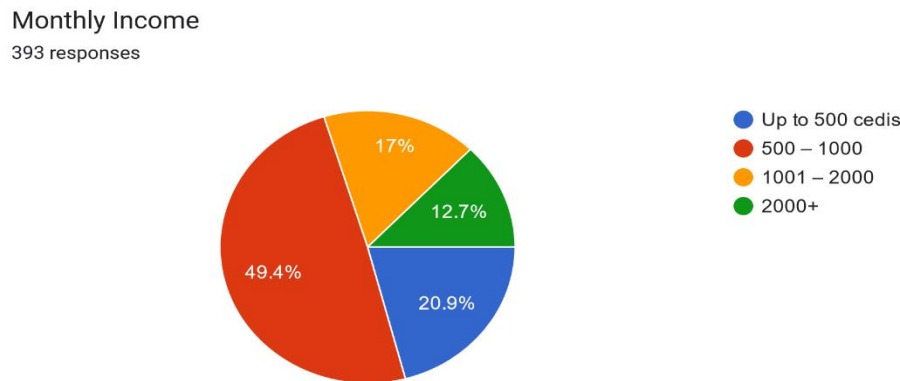
The data also reveals that the majority of respondents—310 (70.9%)—were Christians as opposed to 73 (16.7%) Muslims and 54 (12.4%) traditionalists.

Figure 2 Religion



Additionally, 19.0% of the women said they make less than 500 cedis, 45.3% said they make between 500 and 1000 cedis, and 10.5% said they make more than 2000 cedis.

Figure 3 Distribution of Monthly Income



Only 35 (8.0%) of the 438 responders had been given a cancer diagnosis, and 8.5% of them suffered from a chronic condition like CKD, DM, or HPT.

Figure 4 Type of Cancer Diagnosed

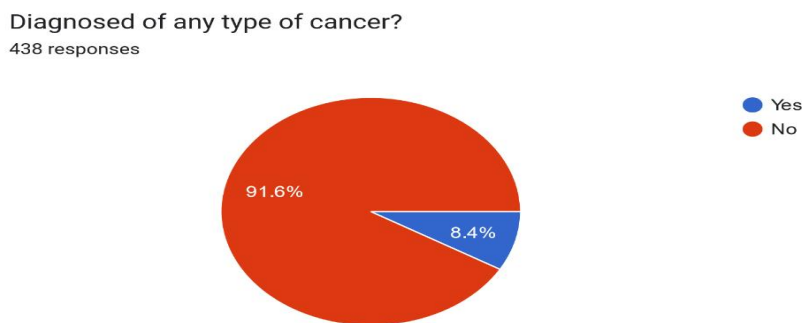


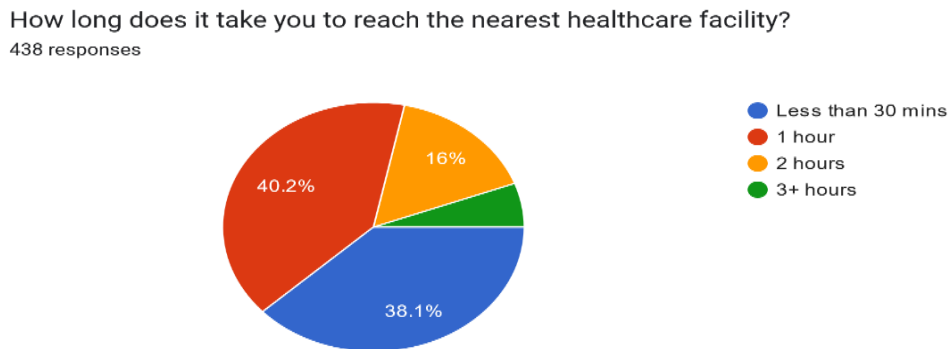
Table 2: Proximity of Health Centre and Payment of Health Care Services

Variables	Frequency (N)	Per cent (%)
Proximity		
Not indicated	57	13.0
1 hour	169	38.7
2 hours	62	14.2
3+ hours	21	4.8
Less than 30 mins	128	29.3
Payment		
NHIS	258	59.0
Out-of-pocket / Cash	154	35.2
Private insurance	24	5.5
Support/Donations	1	.2

Source: Field Study, 2023

Table 2 indicated that 40% of the surveyed respondents stated that the distance between their homes and the health centre is an hour, 16% of them stated 2 hours, 38% indicated less than 30 mins and 6% stated that the distance is over 3 hours.

Figure 5 Distance from Health Facility



Sixty percent (60.0%) of the respondents use NHIS to cover their medical bills, 34% use direct cash and 6% utilize private insurance to cover medical bills.

Figure 6 Means of Payment of Healthcare

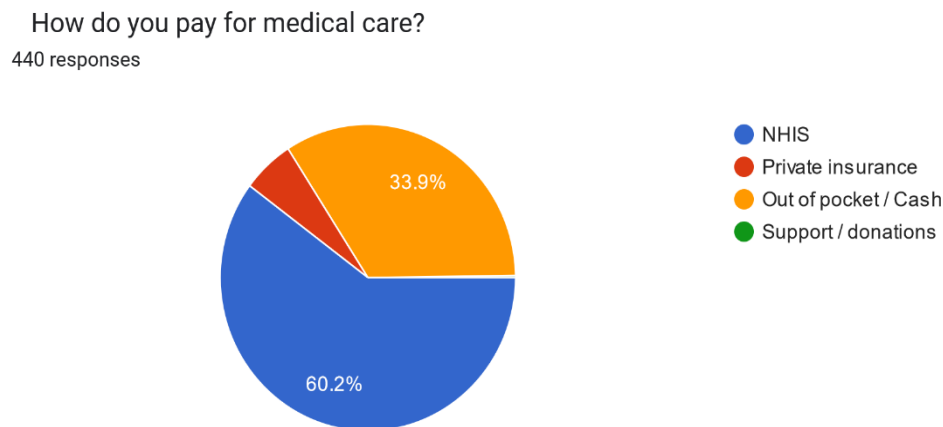


Table 3: Knowledge of Cervical Cancer and Cervical Cancer Screening

Statements	Frequency (N)	Percentage (%)
Being sexually active (having sex) puts a woman at greater risk of cervical cancer		
Yes	127	29.1
No	310	70.9
Human Papillomavirus infection increases cervical cancer risk		

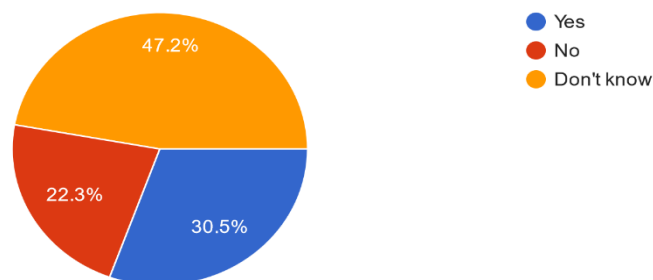
Yes	129	29.5
No	308	70.5
Only women who have had babies need a Pap test		
True	62	14.2
False	130	29.7
I don't know	245	56.1
Cervical screening is used to prevent cervical cancer		
True	128	29.3
False	95	21.7
I don't know	214	49.0
The HPV vaccine is used to prevent cervical cancer		
True	104	23.8
False	80	18.3
I don't know	253	57.9
Women with untreated cervical cancer can die		
True	191	43.7
False	55	12.6
I don't know	191	43.7
Advanced-stage of cervical cancer causes infertility		
True	167	38.2
False	51	11.7
I don't know	219	50.1
Cervical cancer is easily cured if detected at an early stage		
True	189	43.2
False	64	14.6
I don't know	184	42.1

Source: Field Study, 2023

From the dataset, 22.3% of the women who responded to the poll, having sexual intercourse does not increase a woman's risk of developing cervical cancer.

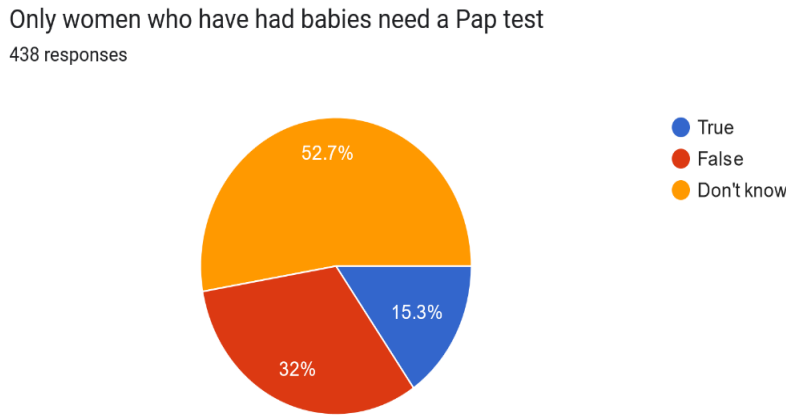
Figure 7 Sexual Activity as Risk

Being sexually active (having sex) puts a woman greater risk of cervical cancer
439 responses



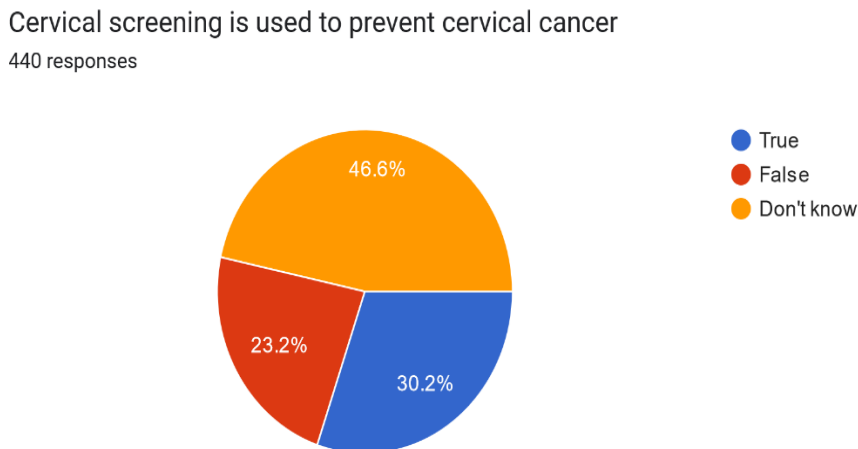
Only 15% of the women who responded to the study said that only pregnant women should get a pap test, while 85% disagreed.

Figure 8 Risk of Women with Children



Again, 46.6% of those who responded to the study were aware that cervical screening can help prevent cervical cancer.

Figure 9 Screening for Prevention



The recent survey shed light on the public's diverse opinions regarding the effectiveness of the HPV vaccine in combating cervical cancer. Approximately 25.3% of respondents recognized the vaccine's role in preventing this type of cancer, suggesting a level of awareness and acceptance of its benefits. However, a notable 18.2% of participants expressed skepticism or outright disagreement with the idea that the vaccine can prevent cervical cancer, highlighting the presence of doubts or misconceptions in the community. Most strikingly, a majority of 56.6% were unsure about the vaccine's ability to cure cervical cancer, reflecting a significant gap in public knowledge and understanding. This lack of certainty among such a large portion of respondents points to the need for more effective communication and educational efforts. It suggests that health authorities

and medical professionals must intensify their efforts to disseminate accurate information about the HPV vaccine, clarifying its preventive rather than curative role in the fight against cervical cancer. This is crucial for improving public health outcomes and ensuring that individuals are well-informed about their health choices.

Figure 10 Vaccine for Prevention

HPV vaccine is used to prevent cervical cancer.
435 responses

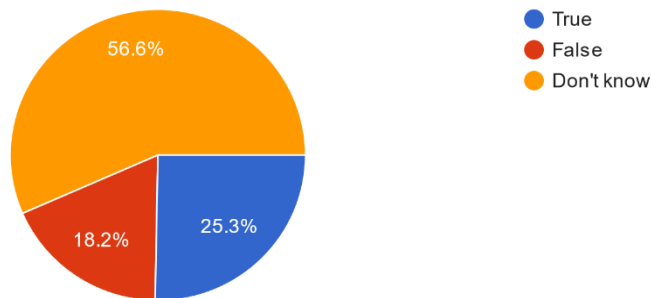
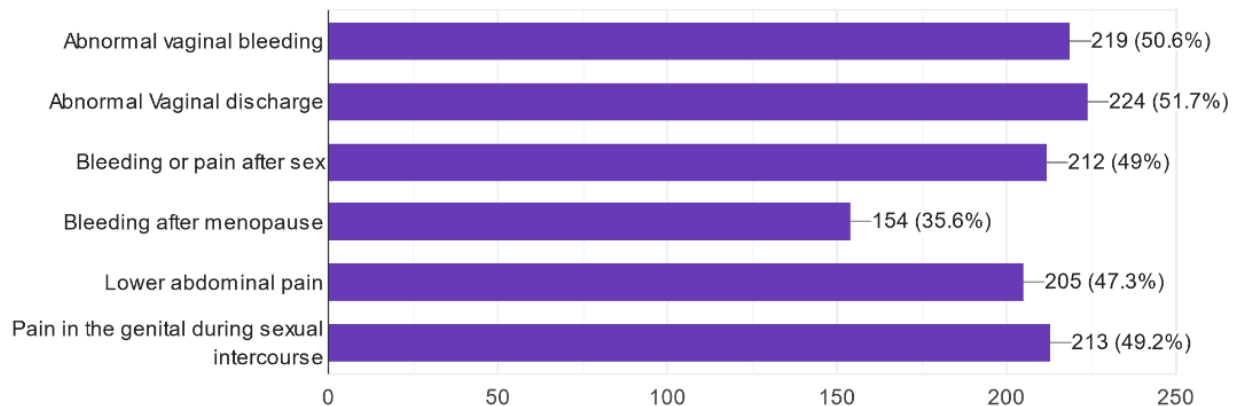


Figure 11 Signs and Symptoms of CC

Signs and symptoms of cervical cancer include
433 responses



From the dataset and the bar chart above, 50.6% of the respondents stated that abnormal vaginal bleeding is a symptom of cervical cancer, 51.7% stated abnormal vaginal discharge, bleeding or pain after sex (49%), 47.5% indicated lower abdominal pain and 49.2% stated that pain in the genital during intercourse is one of the symptoms of cervical cancer.

Table 4. Perception of respondents on women at high risk of cervical cancer.

Statements	Frequency (N)	Per cent (%)
A sex partner who has had other partners	54	12.4
Family history	62	14.2
Having a weak immune system	50	11.4
Having more than one sex partner	111	25.4
Performed early sexual practice <20 years	37	8.5
Smoking	102	23.3
Use of contraceptives for more than 6 years	21	4.8

In Table 4, the findings reflect the opinions of respondents on the various factors they perceive as heightening the risk of cervical cancer. Notably, a significant portion, 25.4%, believe that engaging in sexual relations with multiple partners is a leading risk factor for this type of cancer. Close behind, 23.3% of the respondents point to smoking as another critical risk factor, underscoring the awareness of lifestyle choices in cancer risk. Furthermore, the study highlights other factors that the respondents consider important. A notable 14.2% cite family history as a contributing factor, suggesting an acknowledgment of genetic predispositions in cancer development. Early initiation of sexual activity is identified by 8.5% of respondents as a risk factor, indicating an awareness of how early-life behaviors can influence long-term health risks. In addition, a weakened immune system is mentioned by 11.4% of the participants, highlighting an understanding of how the body's defense mechanisms can impact susceptibility to diseases like cervical cancer. The repeated mention of multiple sexual partners by the respondents suggests a particular concern or awareness within this group about the relationship between sexual behavior and the risk of developing cervical cancer. This emphasis may reflect broader societal concerns or public health messaging about sexual health and cancer prevention. The range of factors identified by the respondents provides a comprehensive view of the perceived risks associated with cervical cancer, encompassing lifestyle choices, genetic factors, and broader health issues.

4. DISCUSSION

Level of Knowledge of Cervical Cancer among Women

The majority of women in the surveyed area hold a consensus view that sexual behavior is not linked to the likelihood of cervical cancer. Specifically, 70.9% of the participants expressed the belief that a woman's chances of developing cervical cancer are not heightened by sexual activity. Similarly, 70.5% of respondents are of the opinion that an infection with human papillomavirus (HPV) does not escalate the risk of cervical cancer. These findings echo the results of a study aimed at assessing the awareness of American women about HPV and cervical cancer, as reported by Mapanga et al. in 2019. Surprisingly, over half of the respondents were unaware of the connection between HPV and cervical cancer. Only a minority, 29.5%, were informed about the potential of cervical screening in mitigating the risk of this cancer. A small fraction, 12.6%, disagreed, while a significant 43.7% were uncertain about the fatal consequences of untreated cervical cancer. Nevertheless, an equal percentage (43.7%) confidently believed that untreated cervical cancer could indeed be fatal.

This study found that whereas 16.25% of the surveyed women had appropriate awareness about the condition, 83.75% had insufficient information. 23.8% of those polled think the HPV vaccine prevents cervical cancer. This is consistent with Bezanaj & Evari's (2016) findings, which showed

that Burkinabe women had a limited understanding of cervical screening. In this cross-sectional survey study, women in Burkina Faso's capital between the ages of 20 and 50 were asked about their knowledge and opinions regarding cervical cancer screening. 840 women, ranging in age from 20 to 50 were asked about their knowledge, attitudes, and practises related to cervical cancer. Only 8.5% of them had heard of the human papillomavirus, and 64.2% have heard of cervical cancer. Furthermore, 69.05% of them are unaware that cervical cancer can be prevented. 90.4% of the participants expressed concern about acquiring cervical cancer, while 96.67% said they would be open to being screened and 11.07% underwent the procedure. Screening rates are poor and Ouagadougou women have little knowledge of or convictions about cervical cancer. The findings of this study are consistent with those of Khan et al. (2016), who found that among Pakistani women, 1 in 5 of the 379 respondents (19.3%) had the best general knowledge of cervical cancer score. The majority of respondents to a survey of Nigerian women to ascertain awareness, beliefs, and factors impacting the use of cervical cancer screening revealed that most were unaware of cervical cancer (Ngo-Metzger & Adsul, 2019). The women who were surveyed show a significant lack of knowledge and usage of this test. Majority of women are unaware of cervical cancer.

5. CONCLUSION

The poll's participants lacked sufficient knowledge on cervical cancer. According to the study, having intercourse does not increase a woman's risk of developing cervical cancer. Cervical cancer symptoms include abnormal vaginal bleeding, abnormal vaginal discharge, bleeding or discomfort after sex, lower abdomen pain, and pain in the genital region during sexual activity. Risk factors for the development of cervical cancer in women include smoking, having several sexual partners, commencing sexual activity early, having a weaker immune system, and having multiple partners. Regarding the advantages of a pap test, there is no discernible difference in opinions among the women who participated in the poll. The results of the responders indicated that the Pap test has many advantages. The attitudes of the polled women regarding the things that keep them from being checked for cervical cancer are not significantly different. Additionally, there were differences in the respondents' evaluations of cervical cancer's severity. The level of knowledge about cervical cancer among the responders is also the same. Obstacles, the strictness of the Pap test, as well as one's degree of education and work, all had an impact on one's intention to be screened. A number of factors, including their religion, level of education, work status, and history of medical issues, impacts the understanding of respondents on cervical screening.

6. RECOMMENDATIONS

The study's results lead to several important recommendations. Firstly, it is crucial to focus on cervical cancer awareness initiatives and educational efforts in the Ada East District. These efforts should be specifically designed to enhance women's understanding of cervical cancer, emphasizing the critical role of regular screening in early detection and prevention. Additionally, it is imperative to make cervical cancer screening services both accessible and affordable for women in the district. This approach should be complemented by establishing robust systems to monitor screening rates and maintain high standards of care, ensuring that women receive timely and effective screenings. These measures are vital for improving women's health outcomes in the district.

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