

# Pap Smear Screening, the Way Forward for Prevention of Cervical Cancer? A Community Based Study in the Buea Health District, Cameroon

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## Abstract

**Introduction:** Cancer of the cervix is the second most common gynecologic malignancy in the world due to lack of awareness and poor uptake of cervical cancer screening services especially in low income countries. In Cameroon, though there is a national cervical cancer-screening program the service has been limited to some main cities without an appreciable impact. **Aims:** The objectives of this study were to determine the knowledge, attitude, practice towards Pap smear screening, thus evaluating its suitability as a screening procedure in Cameroon, through this pilot study in the Buea Health District. **Methods:** The study was a community-based cross-sectional descriptive survey that involved 309 women. Women from 18 years were enrolled for the study from 9<sup>th</sup> October to 20<sup>th</sup> November 2013. **Results:** The mean age of the participants was 32.3 years (SD = 11.7 years). Most of the women (29.5%) who had gone for the Pap test were in the 41 - 50 years age group. Only 3.6% of the study participants had “good” knowledge of cervical cancer and Pap smear screening. Approximately 20% of the women had a previous Pap smear test with 55.7% of them having the test just once. Eighty two percent of those who had secondary and tertiary levels of education had never had a Pap smear test. Awareness of risk factors for cervical cancer was low.

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**Fear of pain, positive results after screening, non-curability of cervical cancer were some factors associated with a low Pap test uptake ( $p < 0.05$ ). Conclusion: There is poor knowledge and perceived barriers by women about Pap smear screening and follow-up services. For an impact to be made in the prevention of cervical cancer, Pap smear screening is not the preferred method because of these limitations in this community.**

## Keywords

**Cervical Cancer, Pap Smear, Knowledge, Attitude, Buea**

## 1. Introduction

Cancer of the cervix is the second most common gynecologic malignancy in the world, with an estimated 493,000 new cases and 274,000 deaths annually. About 83% of the cases occur in low income countries, representing 15% of female deaths annually [1] [2]. Awareness and uptake of cervical cancer screening services has remained poor over the years in low income countries.

Countries that have organized screening programs have substantially reduced cervical cancer incidence and mortality [1]. This is because screening programs have the potential of being effective since the cervix is easily accessible to biopsy, and there is a long latent period easily recognizable before development of cancer. Also treatment is effective in the early stages of the disease [1].

In Cameroon, there is a national cervical cancer-screening program, but the service is limited to some main cities [3]. There have been significant developments in cervical cancer prevention. Initially, efforts to implement cytology-based screening in low income countries have been conducted since the early 1980s but they have failed to reduce the mortality rates. Amongst other factors [4]-[6], this failure can be attributed to limited knowledge and wrong perceptions of the risk factors of cervical cancer [1].

This study is aimed at evaluating the knowledge, attitude, and practice of women towards cervical cancer and Pap smear screening in the Buea Health District.

## 2. Methods

This was a community-based cross-sectional descriptive study on women enrolled from the Buea Health District, South West Region of Cameroon with an estimated population of 90,088 inhabitants [7]. Ethical approval and administrative clearance were obtained from the Faculty of Health Sciences Institutional Review Board (IRB) and the Regional Delegate of Health respectively. The target age for Pap smear screening is between 21 - 65 years according to US Preventive Services Task Force recommendation statement [8]. However, for the purpose of this study, after formal approval by assent or consent, women from 18 years were recruited from 9<sup>th</sup> October to 20<sup>th</sup> November 2013. The aim of including women between the ages of 18 - 24 years was to identify participants that were likely to benefit subsequently from Pap smear screening. Using multistage cluster sampling, 309 participants were recruited based on a KAP study on cervical cancer screening in Maroua, Cameroon [9]. Data was collected from the participants using an interviewer-administered pretest questionnaire. The data were entered using EPI Info version 3.5.1 (CDC/WHO, Atlanta, USA) and systematically checked for errors during data entry by using legal values and specified ranges in Epi-info. In addition, 25% of the questionnaires were double checked by a co-investigator, different from the original data entry person. For categorical data, frequencies were computed. Pearson's Chi-square, Fisher's exact tests were used to determine the strength of the association between variables. A p-value less than 0.05 was considered statistically significant.

## 3. Results

### 3.1. Socio-Demographic Characteristics

The mean age of the participants was 32.3 years (SD = 11.7 years). Unmarried participants were 50.8% while 49.2% were married. About half of the participants had reached a tertiary level of education (47.6%). Most of the participants (47.6%) were students while 18.8% were self-employed. About 10.7% of the participants were

employed, 8% were farmers while 7.8% were unemployed

### 3.2. Knowledge

Seven questions were used to assess the knowledge on cervical cancer and Pap smear screening. The proportion of correct answers is displayed on **Table 1**. After applying the aggregate numerical score to the 7 questions, the level of knowledge on cervical cancer was “fair” (3-5/7) (55.3%). However, a large proportion of the study population (40.7%) had “poor” (0-2/7) knowledge. Only 11 women (3.6%) were assessed to have “good” knowledge (scoring  $\geq 6/7$ ). **Table 2** shows knowledge on the “risk factors of cervical cancer”, “having many sexual partners” was the most widely known risk factor (38.8%). Only 23.3% of the participants felt that “HPV infection” was a risk factor for cervical cancer.

### 3.3. Attitudes

Assessment of attitude towards Pap smear screening and cervical cancer revealed that most of the participants (75.2%) perceived that they could have pre-cancer lesions and therefore were susceptible to cervical cancer. There was a significant relationship between perceived susceptibility to pre-cancer lesions and risk of developing cancer (Fisher’s  $p = 0.00005$ ) (**Table 3**). Participants thought that “the risk of developing cervical cancer” and “the possibility of any woman having pre-cancer lesions” were interrelated.

As regards the morbidity and mortality associated with cervical cancer, 59.9% felt that cervical cancer is more severe than other types of cancers. However, those who perceived some risk of developing cervical cancer thought it was a curable disease (Fisher’s  $p = 0.001$ ) (**Table 4 & Table 5**). There was a significant relationship between the perceived “risk of cancer” and whether the “treatment is worth putting up with” (Fisher’s  $p = 0.03$ ).

### 3.4. Practice

For the emotional barrier, 46.6% thought having a Pap smear test was a painless procedure, 20.7% considered it painful, 32.7% “didn’t know” since they never had a test ( $\chi^2 = 30.36$ ;  $p = 0.0001$ ). Sixty one percent of the

**Table 1.** Knowledge about cervical cancer and screening using Pap smear by 309 participants.

Question	Number of correct answers	Percentage of correct answers for each question
1. What is cervical cancer?	32	10.4
2. Is cervical cancer the number one cause of cancer death in Cameroon?	152	49.2
3. How often does a doctor or nurse recommend for Pap’s test?	121	39.2
4. At what age are women most likely to have cervical cancer?	94	30.4
5. Why is Pap screening conducted?	214	69.3
6. What is the accuracy of test to detect abnormality?	40	12.9
7. What are some of the risk factors of cervical cancer?	79	25.6

**Table 2.** Distribution of responses on risk factors of Cervical Cancer.

Risk factors	Frequency	Percentage for each question
Having many children	41	13.3
Family history of cervical cancer	103	33.3
Smoking	71	23.0
Having many sexual partners	120	38.8
Having viral infection caused by HPV	72	23.3
Having sexual intercourse at an early age	70	22.7

**Table 3.** Statistical analysis of susceptibility and risk of cancer.

Susceptibility 1: Could you have pre-cancer lesions?				
Susceptibility-2: Risk of developing cancer	No	Don't know	Yes	Total
<b>Big risk</b>	16 (8.5%)	17 (9.0%)	156 (82.5%)	189 (100%)
<b>Small risk</b>	3 (20.0%)	1 (6.7%)	11 (73.3%)	15 (100%)
<b>Don't know</b>	9 (7.8%)	32 (30.4)	64 (61.8%)	105 (100%)
<b>Total</b>	28 (8.8%)	50 (16.0%)	231 (75.2%)	309 (100%)

Fisher's p = 0.00005.

**Table 4.** Chance of survival from cervical cancer.

Severity: Chance of cure from cervical cancer				
Susceptibility: Risk of developing cervical cancer	Good chance	Not so good chance	Don't know	Total
<b>Big</b>	72 (37.9%)	88 (46.3%)	30 (15.8%)	190 (100.0%)
<b>Small</b>	6 (37.5%)	6 (37.5%)	4 (25.0%)	16 (100%)
<b>Don't know</b>	35 (34.3%)	29 (28.4%)	38 (37.3%)	103 (100%)
<b>TOTAL</b>	113 (36.7%)	123 (39.9%)	73 (23.4%)	309 (100%)

Fisher's p = 0.001.

**Table 5.** Opinion about treatment of cervical cancer.

Severity: Is treatment worth putting up with?				
Susceptibility: Risk of developing cervical cancer	No	Don't know	Yes	Total
<b>Big</b>	50 (26.3%)	34 (17.9%)	106 (55.8%)	190 (100%)
<b>Small</b>	6 (37.5%)	1 (6.3%)	9 (56.3%)	16 (100%)
<b>Don't know</b>	21 (20.4)	33 (32.0%)	49 (47.6%)	103 (100%)
<b>TOTAL</b>	77 (24.9%)	68 (22.0%)	164 (53.1%)	309 (100%)

Fisher's p = 0.03.

participants were of the opinion that Pap smear screening was not unpleasant and/or embarrassing.

A feeling of anxiety was expressed by 45.3% of participants who were afraid that something wrong might be detected if they went for a Pap smear test. Up to 78% agreed that they would be worried if they were found to have early signs of cervical cancer. Only 19.7% had done a Pap test. Women in the  $\leq 20$  year's age group had the highest proportion of those who had not done a Pap smear test p = 0.0001 (**Table 6**).

Most of the women (86.3%) reported that they plan to have or continue with Pap smear screening in the future. Up to 98.4% agreed that they will go for subsequent evaluation if their Pap smear results showed any lesions. There was no sex preference for the person who performed the test within 54.4% cases, while a male or female health provider was preferred by 19.9% and 25.7% participants respectively. There was a correlation between the level of education and the practice of Pap smear screening ( $\chi^2 = 8.51$ ; p = 0.01) (**Table 7**).

## 4. Discussion

In this study, the socio-demographic characteristics knowledge, attitude and practice of women towards cervical cancer and Pap smear screening in the Buea Health District, Cameroon were assessed.

The mean age of the participants was 32.3 years (range 18 - 67 years), similar to that of 34.6 years in a study in Rewa subdivision, Fiji by Susana [10] in 2009. Most of the participants were students with a tertiary level of education. Unlike Susana's study where majority of them were married, in this study, we found out that only half of the women were married. This is probably due to the fact that, there is a state university in Buea where a

**Table 6.** Pap smear screening test in various age groups.

Age category	Practice: Have you had a Pap smear test		
	Yes	No	Total
≤20	1 (6.3%)	15 (93.8)	16 (100%)
21 - 30	14 (8.4%)	152 (91.6%)	166 (100%)
31 - 40	15 (29.4%)	36 (70.6%)	51 (100%)
41 - 50	18 (39.1%)	28 (60.9%)	46 (100%)
51+	13 (43.3%)	17 (56.7%)	30 (100%)
<b>TOTAL</b>	61 (19.7%)	248 (80.3%)	309 (100.0%)

Fisher’s p = 0.0001.

**Table 7.** Educational level and attitude towards Pap smear screening.

Level of education	Practice: Have you had a Pap smear test		
	Yes	No	Total
Secondary	31 (25.0%)	93 (75.0%)	124 (100%)
Tertiary	19 (12.9%)	128 (87.1%)	147 (100%)
Primary	11 (29.0%)	27 (71.1%)	38 (100%)
<b>TOTAL</b>	61 (19.7%)	248 (80.3%)	309 (100%)

$\chi^2 = 8.51$ ; p = 0.01.

large proportion of its population is unmarried students.

A minority of the participants, 11 (3.6%) had “good” knowledge about cervical cancer and Pap smear screening. About half of the women had “fair” knowledge while, 40.7%, had “poor” knowledge (Table 1). This appears to be a common problem in other parts of the country like in Maroua [9] and other sub Saharan countries where similar findings were documented [11] [12].

In Dares Salaam, however, awareness was found to be high as three quarters of the respondents were aware of carcinoma of the cervix [13]. This can be explained by the fact that Tanzania, though a low income country, has adopted a good health policy especially with respect to cervical cancer. Similarly, women are more exposed to health facilities, screening services and information from a variety of news media. The Tanzanian approach could be emulated to increase the practice of cervical cancer screening program in Cameroon. Contrary to what was found in the indigenous population in Buea, a study carried out in six hospitals in Yaoundé, Cameroon by Catherine *et al.*, 2011 [14] among health care providers showed that they had “good” knowledge on cervical cancer and Pap smear screening. Yaoundé being an urban area has better health facilities and trained health workers unlike the rural areas. It might be interesting to assess whether awareness on cervical cancer and Pap smear screening is also high among health providers working in rural areas.

The risk factors for cervical cancer were known by 25.6% of the participants. The most common risk factor was multiple sexual partners (Table 1). This was also reported in Ghana [15]. However, in Ilala Municipality, Dar es Salaam, multiparity was the most common cited risk factor among respondents [13]. In another survey in Niger [16], 22% of the participants could not list any risk factors of cervical cancer. Knowledge on risk factors is very important in the prevention of cervical cancer. Knowledge plays a vital role in disease prevention. Since level of knowledge in this study was mostly “fair” or “poor”, health education on this important aspect of cancer prevention should be emphasized.

Participants were also ignorant about HPV infection and its link with cervical cancer. Only 72 (23.3%) participants mentioned HPV as an important factor among the causes of cervical cancer. This is similar to what was found in a study in the urban area of Songea by James in 2011 [17], where only 10 women mentioned HPV as a causative agent for Cervical cancer. This can negatively affect HPV prevention by vaccination, whenever it becomes available in our community, if the link between the virus and cervical cancer is not well understood by the target population.

Differences in levels of knowledge between low income and high income countries could be as a result of the cultural and ethnic differences, levels of intervention such as existing population-based screening programs, or mass media campaigns on cervical cancer screening which are effectively done in high income countries. Furthermore, health care services in high income countries are well organized. There is accessibility to cervical screening as well as trained and highly motivated health personnel.

With regards to cancer susceptibility, analysis showed that there is a significant relationship between the perceived susceptibility and risk of developing cervical cancer ( $p = 0.0005$ ). Women who perceived that they could have pre-cancer lesions also perceived that they could have some degree of risk (**Table 3**). A similar trend was shown in the in Rewa subdivision, Fiji by Susana [10]. On the contrary, in Songea urban [17] and Ghana [15], up to half of the participants expressed lack of personal susceptibility to cervical cancer and therefore believed it unnecessary to be screened. The problem lies with those who didn't know their perceived susceptibility and perceived risks since these women were likely to neglect Pap smear screening as they were unaware of its impact on cervical cancer prevention. However, more positive findings about knowledge of the susceptibility to cervical cancer were reported in Mexico by Myriam [18].

Looking at impact of cervical cancer as one of the variables affecting attitude, majority of the participants perceived cervical cancer as more severe than other forms of cancers. A third of them felt that the chance of cure is good (**Table 4**), while over half thought the disease worth treating (**Table 5**). Unlike the women in Rewa subdivision, Fiji [10], our study population had a less optimistic attitude as regards the cure of cervical cancer. The presence of this positive attitude is very important as it is likely to motivate women to be screened and managed appropriately.

Like the study in Fiji [10], there was a significant relationship between those who perceive some risks and a chance of cure of cervical cancer (Fisher's  $p = 0.001$ ) and those who perceive that treatment of cervical cancer is worth putting up with (Fisher's  $p = 0.03$ ). However, there was concern about those who had good knowledge and a positive attitude, but were not convinced about the efficacy of treatment. Therefore, these women needed to be targeted and advised appropriately if they were to benefit from any cervical cancer screening program.

The benefit of doing a Pap smear test was expressed by 77.5% of the study population. Though this is not up to 80% seen in the study in Rewa subdivision, Fiji [10], with this positive attitude, there were hopes that women will practice and comply with the follow-up schedules even with other methods of screening like VIA/VILI and oncogenic HPV testing.

In this study only 19.7% of the participants had been screened for cervical cancer. 55.7% of them had only one Pap smear test. This is a problem in many African countries. In similar studies carried out in Ethiopia and South Africa, only 6.5% and 19% of all the participants respectively ever had a Pap smear screening test [12], [19]. The situation was worse in Nigeria where only 5.7% of the study population had been screened for cervical cancer using Pap smears [20]. Generally, women in low income countries especially in sub Saharan Africa are not routinely screened for cervical premalignant lesions. This accounts for the high prevalence of advanced stages of cervical cancer in most health facilities in the SSA [21] unlike in high income countries [22]. However, most of the participants in our study envisaged continuing with Pap smear screening and were willing to go for follow-up clinics if their Pap smear results revealed precancerous or cancerous lesions.

Women below 30 years constituted the smallest proportion of those who had done a Pap smear **Table 6**. The situation was similar in Ruvuma, Tanzania where the 20 - 29 year's age group was least screened [17]. The situation in Jordan was different, where older women were the least likely to have Pap smears [23]. The results of this study can be explained by the fact that younger women are likely to be healthier and thus seek less medical advice. The younger age group is also less likely to be screened if the U.S. Preventive Services Task Force recommendation statement of screening women as from 21 years is respected by health care providers [8]. However, some researchers recommend screening to be carried out for sexually active women irrespective of age [9]. The majority of women who were screened in this study were above 40 years. The other socio-demographic characteristics that appeared to affect screening behavior were; marital status, level of education (**Table 7**) and multiparity. A study in the United States, Tung showed that the educational level and marital status contributed significantly towards cervical cancer screening of Vietnamese and Cambodian women [24]. Similar barriers to screening were identified by Anorlu [11] and Adanu [25] in sub-Saharan Africa.

The barriers to cervical cancer screening were; fear of pain, lack of time, cost of test and the fear that something wrong will be detected. In other studies, factors that hindered screening were; fear of pain, shyness, cost and also the thought that they were healthy and didn't have a reason to be screened [10] [17]. These findings

suggest the importance of providing information about the value of cervical cancer screening to abate anxiety associated with these barriers. It is only by such actions, that practice of screening for cervical cancer can be increased with a concomitant decrease in cervical cancer morbidity and mortality in our community.

## 5. Conclusion

There is poor knowledge and perceived barriers by women about Pap smear screening and follow-up services. For an impact to be made in the prevention of cervical cancer, Pap smear screening is not the preferred method because of these limitations in this community.

## Conflict of Interest

None. The authors do not declare any conflict of interest

## Contribution of Authors

All authors contributed in the project conception, data collection and analysis, drafting and proof reading the manuscript. Gregory Edie Halle Ekane is the corresponding author.

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