

Knowledge of Cervical Cancer Risk Factors Among Educated Women in Lomé, Togo: Half-Truths and Misconceptions

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Abstract

Cervical cancer, a highly preventable form of cancer, is mostly common among women in sub-Saharan Africa. This study assessed what Togolese educated women know about cervical cancer and the accuracy of their knowledge. It also examined the factors that correlate with accurate knowledge among the women. This study, like its previous ones, pointed out the lack of accurate knowledge of cervical cancer risk factors among educated women in Togo. However, unlike the earlier studies, it showed the beliefs and thoughts of educated women with regard to cervical cancer knowledge and explained some of the inaccuracies of the beliefs. It also showed the necessity of educating Togolese women, even the educated ones, about cervical cancer and its risk factors as these women hold inaccurate knowledge about the disease. Ideally, screening for cervical cancer is the primary means to control it. However, in an environment where screening is not readily available and accessible, knowledge of cervical cancer risk factors may aid women to change behaviors that put them at risk. Although health officials may have their own priorities, it is very important to know that cervical cancer is a public health issue, which could be curbed.

Keywords

cervical cancer, knowledge, risk factors, Togo, educated women

Introduction

Cervical cancer, a highly preventable form of cancer, is mostly common among women in sub-Saharan Africa (Louie et al., 2009). In fact, the age-standardized incidence rate of cervical cancer in sub-Saharan Africa is one of the highest in the world, and it is estimated at 31 per 100,000 women compared with 12.1 in Northern Africa and 11.6 in Europe (Ferlay, Bray, Pisani, & Parkin, 2004). Although both cervical cancer incidence and mortality rates have seen significant decline in the developed world where 63% of women are screened, this is not the case in developing countries. Gakidou, Nordhagen, and Obermeyer (2008) reported that only around 19% of women in developing countries had a pap smear in the 3 years prior to the survey. Knowledge of cervical cancer risk factors and particularly knowledge of its strong relationship to human papillomavirus (HPV), independent of other factors (Bosch, Lorincz, Munoz, Meijer, & Shah, 2002), have helped to combat this cancer in developed countries through massive cervical cancer screening programs. This study examined knowledge of cervical cancer risk factors among educated women in Lomé, Togo. The following questions guided this research: (a) What do educated Togolese women know about cervical cancer? (b) How accurate is their knowledge of cervical cancer risk factors? and

(c) What are the factors that correlate with accurate knowledge of cervical cancer risk factors? Although cervical cancer screening is the best preventive method for cancer reduction, in an environment such as Togo, where health care is a significant challenge for the average citizen and screening programs are nonexistent, we believe that knowledge of cervical cancer risk factors will be necessary and beneficial for women who may ultimately choose to change their risk behaviors to minimize the odds of cervical cancer.

There are several risk factors for cervical cancer. Cervical cancer is commonly linked to sexual behaviors and risk factors, such as unprotected sex, having multiple sexual partners, and having a partner who has/had multiple sexual partners (Bosch et al., 2002; Centers for Disease Control and Prevention, National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention, Division of STD Prevention, 2013; Cooper et al., 2007). Having an immunosuppression is another risk factor. Multiparity has been found to be another

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risk factor (Hildesheim et al., 2001). Research has also shown that diet has an impact on the development of cervical cancer (Shannon et al., 2002). Poverty is another risk factor because women of lower socio-economic status have higher rates of incidence of cervical cancer (American Cancer Society, 2013a; Teitelman, Stringer, Averbuch, & Witkoski, 2009) and mortality from the disease (Eggleston et al., 2006; Singh, Miller, Hankey, & Edwards, 2004). Also, use of an intrauterine device (IUD) might act as a protective co-factor against the development of the disease (Castellsagué et al., 2011). Although cervical cancer itself is not hereditary, studies have reported that genetics may offer some insights into why some cases of HPV develop into cancer, while others do not (Franco, Schlecht, & Saslow, 2003; Guzman et al., 2008). Also linked to cervical cancer is exposure to diethylstilbestrol (DES), a hormone prescribed to pregnant women between 1940 and 1971 to prevent pregnancy complications (Herbst, Ulfelder, & Poskanzer, 1999; Rubin, 2007). Smoking is another risk factor (Brinton et al., 1986; Hall, Weinman, & Marteau, 2004; Kjellberg et al., 2000). Early age at first sex and early age at first pregnancy have also been found to increase risk of cervical cancer (Louie, de Sanjose, & Mayaud, 2009). Similarly, although some researchers have suggested a causal relationship between long-term use of oral contraceptives and cervical cancer (Smith et al., 2003), there has been some controversy over these findings (Miller, Blumenthal, & Blanchard, 2004). However, all of these factors are recognized by the American Cancer Society (2013).

In the United States, recent studies have mainly examined women's awareness of cervical cancer with regard to HPV virus and Pap smear testing. They reported low rates of knowledge of HPV causing cervical cancer and cervical cancer risk factors (Baer, Allen, & Braun, 2000; Denny-Smith, Bairan, & Page, 2006; Lambert, 2001; Mays et al., 2000; Tiro, Meissner, Kobrin, & Chollette, 2007). Also, studies that specifically examined knowledge of cervical cancer risk factors from around the world have shown low levels of knowledge in general. In Turkey, for example, Yanikkerem, Goker, Piro, Dikayak, and Koyuncu (2013) found that women had generally moderate knowledge that sexual behavior is related to risk of developing cervical cancer. In Ethiopia, Getahun, Mazengia, Abuhay, and Birhanu (2013) found that more than 78% of the 633 women they studied had heard of cervical cancer, yet only around 30% could name a risk factor for the disease. In a recent study in Nigeria, around 40% of study participants ($n = 360$) were aware of cervical cancer, and around 30% knew that it was preventable. However, only 0.6% had ever been screened (Eze, Umeora, Obuna, Egwuatu, & Ejikeme, 2012). In South Africa, Wellensiek, Moodley, Moodley, and Nkwanyana (2002) also reported that socio-demographic factors played a role in knowledge of risk factors. Participants from lower socio-economic backgrounds were less likely to be aware of cervical cancer screening.

Setting

Togo is a small Western African country with an estimated population of 6.5 million in 2011. More than 60% of the Togolese population was living in poverty in 2006 (International Monetary Fund [IMF], 2008). Literacy rate for Togolese aged 15 and above was 57% in 2009 (The World Bank Group, 2013). Formal education in Togo has a pyramid shape whereby the number of pupils decreases as the level of education increases. In addition, there are great disparities between the number of females and males who attend school, and the differences become even more significant as one goes up the educational attainment ladder. For instance, in 2011, the female/male ratio was 63% for students in Grades 7 to 10, but decreased to 40% for students in Grades 11 to 13 (Education Policy and Data Center, 2012). Even a fewer number of women enroll and obtain a higher education.

Cervical cancer is the second most common cancer among Togolese women. It was estimated that every year around 433 women are diagnosed with cervical cancer and 265 die from it (World Health Organization [WHO]/Institut Català d'Oncologia [ICO], HPV Information Center, 2014). However, note that women who do not seek modern medical care may not be included in these numbers. In addition, a study on the general knowledge of cancer risk factors among Togolese reported low knowledge (Moore, 2013). In such an environment, we thought that targeting women with a higher level of education (university level of education) is warranted as these women represent a special group of people and also education tends to significantly correlate with accurate knowledge of cervical cancer risk factors (Getahun et al., 2013; Wellensiek et al., 2002).

Health care in Togo, just like in most developing countries, is a substantial task given limited available resources. Although some improvements have been made in the past few decades, mortality is still high in general, and women's health is still problematic (WHO, 2011). Affordability of health care services is another challenge. In fact, about 35% of Togolese have problems paying for medical prescriptions above US\$10 (XOF5,000; African Economic Outlook, 2014). Although urban dwellers may have a better access to health care services relative to rural residents, childhood malnutrition, maternal health, and women's health are some urgent areas of health that need improvement in Togo regardless of setting (The World Bank Group, 2014).

Method

Data Collection and Procedure

A cross-sectional survey of 97 educated women was conducted in Lomé, Togo, from October to December, 2012. The study protocol was approved by the University of North Texas Institutional Review Board. The questionnaire was originally in English and translated into French, the official

language of Togo. The first author, with the help of a trained Togolese woman who had experience in data collection methods, collected the data. We recruited women who were university students or have graduated from university. The survey took on average 25 min. Participants were paid an equivalent of US\$4 (CFA2,000).

Participants were asked to freely list the risk factors for cervical cancer that they knew and explain the reasons why they thought those factors were risk factors. Then, they were presented a list of established risk factors for cervical cancer (American Cancer Society, 2013) and were asked whether or not these factors were risk factors. Questions about established risk factors for cervical cancer included the following 11 factors: (a) HPV, (b) use of oral contraceptive, (c) multiparity, (d) age, (e) sexually transmitted infections (STIs), (f) smoking, (g) multiple sexual partners, (h) early sexual initiation, (i) human immunodeficiency virus (HIV), (j) use of oral contraceptives, and (k) cancer history in family. The women had three options to choose from: “yes,” “no,” or “don’t know.” These were later regrouped in two categories: “Yes” = accurate knowledge and “Don’t know” and “No” = inaccurate knowledge. In addition, they were asked whether they knew about Pap smear test and had ever had the test. Also, they were asked whether they would like to be tested if Pap smear test was readily available and accessible in Togo.

Data Analysis

We first presented all the risk factors that participants listed in a frequency distribution table (Table 2). Second, we then translated verbatim participants’ explanations of why they thought their listed factors were risk factors. Third, the explanations were then analyzed and grouped according to each risk factor. We also created a frequency distribution of participants’ knowledge of each of the established risk factors (Table 3). Fourth, we created a variable (knowledge scores) that captured participants’ knowledge of the established risk factors as done by Ralston et al. (2003). Each knowledge score is the number of risk factors a participant correctly identified ranging from 0 (*none correctly identified*) to 11 (*all correctly identified*). A multiple linear regression analysis was conducted in which knowledge of cervical cancer risk factors was assessed controlling for participants’ demographic, sexual history, and Pap smear knowledge variables. The results are found in Table 4.

Results

Sample

The women who participated in this study were all residents of Lomé, the capital city of Togo. Table 1 reports the descriptive statistics for the sample of 97 educated women who participated in this study. The majority of the women were in college and university in Lomé at the time of the study. The

Table 1. Descriptive Statistics ($N = 97$).

Variables	<i>N</i>	<i>M</i>	Percent
Age (years)	97	27.85	—
Education (years)	97	15.4	—
Lifetime number of sexual partners	96	1.98	—
Marital status			
Married	19		20
Unmarried	78		80
Occupation			
University student	77		79.40
High school teacher	7		7.22
Administrative assistant	5		5.22
Accountant	3		3.09
Unemployed	2		2.06
Journalist	1		1.03
Business	1		1.03
NGO	1		1.03
Knowledge of Pap smear			
Yes	26		30
No	68		70
Have ever had Pap smear			
Yes	8		8
No	89		92
Ever exchanged sex for money			
Yes	15		17
No	71		83
Ever had an STI			
Yes	16		18
No	72		82
Had sex in the past 6 months			
Yes	64		74
No	22		26

Note. STI = sexually transmitted infection.

mean age was about 28 years (27.85) with a range of 18 to 58 years. They had 15.40 mean years of education. They were mostly unmarried (80%). They reported a mean number of about 2 (1.98) lifetime sexual partners with a range of 1 to 6 partners. Although 17% of the women had exchanged sex for valuable resources, 18% had ever had a sexually transmitted infection. Also, 74% of the women reported having had sex within the past 6 months of the study. Only 30% of the sample knew about Pap smear testing, but even fewer women had ever had the test (8%). They all agreed that they would volunteer for a Pap smear test to make sure they did not have cervical cancer if the test was readily available and affordable.

Knowledge of Cervical Cancer Risk Factors

Study participants listed what they thought were cervical cancer risk factors. Lack of personal hygiene (including poor sanitation, poor sexual hygiene, and washing with dirty water), botched induced abortions, and STIs were the top

Table 2. Perceived Risk Factors Suggested by Togolese Women.

Perceived risk factor	Frequency
Lack of personal hygiene (poor sanitation, poor sexual hygiene, washing with dirty water, wearing unclean underwear)	33
Abortions (Botched, induced, repeated, unclean)	29
Sexually transmitted infections	28
Vaginal infections	19
Use of contraceptives (IUD)	19
Genetic predisposition	17
General infections	15
Multiple sexual partners	12
Early age of sexual activity	11
Unprotected sex	10
Diet/malnutrition	9
Cuts and tears in the vagina (rape, violence, sexual position)	7
Drug use	6
Prostitution	5
Frequent sex	4
Smoking	4
Too close births	4
Fibroids/myomas	3
Use of chemical products/deodorants in the vagina	3
Use of unregulated medicines	2
Lack of gynecological care	1
Use of lipsticks that contain lead	1
Surgical operation on the cervix	1
Too many children	1
Masturbation	1
Tumor in breast	1
Early age at first menstruation	1
Not having children	1
Sexual activity	1

Note. IUD = intrauterine device.

Table 3. Knowledge of Risk Factors for Cervical Cancer.

Risk factors	Correct answer	N	Percent
Smoking a risk factor?	Yes	47	48.5
Multiparity a risk factor?	Yes	52	53.6
HIV/AIDS a risk factor?	Yes	65	67
STI a risk factor?	Yes	88	90.7
HPV a risk factor?	Yes	19	19.6
Multiple sexual partners a risk factor?	Yes	85	87.6
Age a risk factor?	Yes	43	44.3
Use of contraceptives a risk factor?	Yes	23	23.7
Early sexual initiation a risk factor	Yes	43	44.3
Cancer history in family?	Yes	45	46.4
Is diet a risk factor?	Yes	27	27.8

Note. STI = sexually transmitted infection; HPV = human papillomavirus.

Table 4. Results of OLS Regression Analysis for Knowledge of Cervical Cancer Risk Factors on Sociodemographic Variables (N = 97).

Variables	B (SE)
Intercept	-6.746 (3.719)
Age (years)	0.081 (0.032)**
Education (years)	0.694 (0.252)***
Marital status (1 = married)	-0.229 (0.704)
Ever exchanged sex for money (1 = yes)	-0.020 (0.625)
Lifetime number of sexual partners	0.023 (0.204)
Knowledge of Pap smear (1 = yes)	0.810 (0.571)
Had sex in the past 6 months (1 = yes)	-1.034 (0.531)
Ever had STI (1 = yes)	0.218 (0.647)
Ever had Pap smear	0.869 (0.917)
R ²	.438

Note. OLS = ordinary least squares; B (SE) = unstandardized estimate of the logistic regression coefficient (and its standard error); STI = sexually transmitted infection.

* $p \leq .05$. ** $p \leq .01$. *** $p \leq .001$.

three factors that were listed, closely followed by vaginal infections and use of contraceptives especially IUD (Table 2). However, as shown in Table 2, the established risk factors such as having multiple sexual partners and early sexual initiation were less listed. Some of the least listed risk factors include not having children, tumor in the breast, and masturbation. Ironically, HPV, the primary risk factor for cervical cancer, was not mentioned by any of the participants. This, in fact, shows the inaccuracy of the knowledge that our participants had regarding cervical cancer risk factors.

Participants' Explanations of Listed Risk Factors

Poor personal hygiene. When asked to explain why they thought the listed factors were risk factors, participants gave a variety of explanations. For instance, most of the women who thought poor personal hygiene was a risk factor for cervical cancer expressed their views as shown in the following comments. A 37-year old married woman who was a journalist explained, "When personal hygiene is not practiced, especially around the genital area, microbes can enter the vagina and later cause cancer of the cervix."

Another respondent who was 49 years old, had 16 years of education, and was teaching at a high school simply explained,

A woman that lacks corporal hygiene and personal cleanliness of her clothing facilitate viruses to enter into her organism. The organism becomes weak and sick because cleanliness gives health and vigor to the body. And if a woman does not take care of herself (body), things become complicated and may lead to cervical cancer.

For these women, microbes and viruses cause cervical cancer, and hence, one must practice proper hygiene to avoid this cancer. Although it is true that cervical cancer is caused by a certain kind of virus (HPV), practicing proper hygiene does not shelter one from getting HPV if the risk factors such as having unprotected sex, having multiple sexual partners, and having a partner who had/has multiple sexual partners are present in one's life. This is important information that our study participants need to understand.

Induced abortions. Some of the women who mentioned induced abortions as a risk factor related it to infections. A 26-year-old single woman with 15 years of education stated, "Induced abortion create a disturbance for the uterus. And when abortions are botched, they cause huge infections that lead to cervical cancer." A college student with 15 years of education also explained why she thought induced abortions are a risk factor for cervical cancer as follows: "The cervix can be infected during induced abortions. The infections have to be well treated otherwise they later become the germs for cervical cancer."

The comments above show another aspect of misconception that participants had about cervical cancer risk factors. No study has linked induced abortions to cervical cancer.

Sexually transmitted infections. In addition, participants reported that STIs were risk factors because when these infections are not properly treated, they become cancerous. A 24-year-old college student who had 15 years of education simply explained, "Improperly treated STIs become complicated and grave, and it degenerates in the worst case scenario into cancer of the cervix." Another woman with 18 years of education also reported, "STIs are always dangerous for the female genital, and without the proper treatment can lead to fatal cervical cancer."

Overall, participants had erroneous information about cervical cancer risk factors and hence their explanations were inaccurate. There were a lot of misconceptions and half-truths. Although some were able to identify STIs as risk factors, they mostly did not understand that HPV was the virus that causes cervical cancer. Also, as shown in Table 2, believing that a lack of personal hygiene is a risk factor might give these women a false sense of protection as some might adamantly practice personal cleanliness and then believed that they were not at risk of getting cervical cancer. Also, those who never had an induced abortion might falsely think they were sheltered from getting cervical cancer. In addition, contrary to some scientific studies, which reported that use of IUD may act as a protective factor against cervical cancer, some of the participants thought the use of IUD is a risk factor instead, as shown in the following comments. Safia, a 25-year-old college student with 15 years of education explained her belief, "When IUDs are not properly maintained, they accumulate microbes in the vagina and become source of cancer." Carina, another college student, with 16

years of education also simply stated, "having IUD in a woman for months or a year can be a source of infection that may lead to cervical cancer."

Identification of Established Risk Factors

Participants were given a list of the established risk factors and were asked whether or not these factors were risk factors. There is also a variation in the proportions of participants who correctly identified an established cervical cancer risk factor (Table 3). Only 4 of the 11 established risk factors were accurately identified by most of the participants: STIs, multiple sexual partners, HIV/AIDS, and multiparity. However, although almost 91% of the women correctly identified STIs as a risk factor, only about 20% thought HPV was a risk factor and was the least identified factor. Again, this shows that the educated women who we studied were poorly knowledgeable about HPV being the primary cause of cervical cancer. Having multiple sexual partners was the second highest identified risk factor (87.6%), followed by HIV/AIDS (67%).

Multiple Linear Regression Results

Next, before reporting the results of the multiple linear regression analysis of accurate knowledge of cervical cancer risk factors, we presented some statistics on the knowledge score. The knowledge score had a mean of 5.6 with a standard deviation of 2.25 and a minimum of 1 and a maximum of 10. This means that although some participants were only able to correctly identify 1 risk factor, others were able to correctly identify 10 risk factors out of the 11 established factors that were presented. The multiple regression analysis showed that only two variables significantly affect knowledge of cancer risk factors among the educated women: age and years of education (Table 4). In fact, 1 year of education increased the knowledge score by 0.694 whereas an additional year in age increased a woman's knowledge of cervical cancer risk factors by only 0.081. None of the other factors significantly correlate with accurate knowledge of cervical cancer risk factors among study participants. In fact, these results confirm the qualitative data presented earlier.

Discussion

This study attempts to assess what Togolese educated women know about cervical cancer and the accuracy of their knowledge. It also examines the factors that correlate with accurate knowledge among the women. Cervical cancer is the second most frequent cancer among women in Togo. It has a very high mortality rate as an estimated 417 of the 595 women with cervical cancer die every year (WHO/ICO, HPV Information Center, 2014). Also, oncology services are not only cost prohibitive in Togo but also not supported by the health care infrastructure that was present at the time of the

survey. Hence, Togolese who can afford cancer treatment usually go to the neighboring country of Ghana because Togo does not have cancer treatment facilities (International Atomic Energy Agency, 2008). Although early detection makes a significant difference in cervical cancer as in other cancers, screening programs are unavailable in Togo. In such an environment, it is important for Togolese women to have accurate knowledge of cervical cancer risk factors to adopt healthy behaviors that will help reduce their risks of acquiring this cancer.

Knowledge of cancer risk factors among the educated women sampled is low as found in other studies (Getahun et al., 2013; Yanikkerem et al., 2013). Only about 20% were able to recognize and identify HPV as a risk factor. Also, most of the women correctly identified only 4 of the 11 established risk factors that were used for this study. Although a significant proportion (91%) identified STIs as risk factors, they were unable to explain how STIs facilitate HPV to develop into cervical cancer. None of the women listed HPV when asked to list cervical cancer risk factors.

However, contrary to previous studies, because we asked the women to explain the reasons for listing each of the factors that they mentioned, we were able to see a pattern of certain beliefs among them. First, some of the women believed that induced abortions are a risk factor, especially if the abortion is not properly performed. The idea behind this belief may stem from the fact that induced abortions are not performed under safe conditions and lead to complications and even maternal deaths in Africa in general (Guttmacher Institute, 2012). However, this belief of induced abortion as a risk factor for cervical cancer is erroneous as no study has linked cervical cancer to induced abortion. Second, some of our study participants associated cervical cancer with a lack of personal hygiene because they thought sanitary practices preclude one from getting the virus. This belief may have come from the association of disease to germs, microbes, and viruses. Although there is an association between diseases and the different disease causing agents, cervical cancer is mainly caused by HPV, a sexually transmitted virus. Thus, this shows substantial level of inaccuracy and misconception with regard to cervical cancer risk factors, although the women we studied were quite educated compared with the general population. In addition, contrary to some scientific studies (Castellsagué et al., 2011; Wellensiek et al., 2002) that reported that use of IUD may act as a protective factor against cervical cancer, some of the participants thought the use of IUD is a risk factor instead.

To examine factors that correlate with cervical cancer risk factors, we ran a multiple linear regression model. Results show that only age and education positively correlate with accurate knowledge of the risk factors. We were surprised that knowledge of Pap smear did not significantly correlate with accurate knowledge as shown in other studies. However, it could be that some of the women just heard of the Pap smear test; they did not know what it really does. Also, the

result could be explained by the fact that a very small percent (8%) had ever done the Pap smear.

There are a few issues that need to be mentioned about the study. There is a lack of firm evidence of causality as the data were cross-sectionally collected. Also, findings may not be generalized to the whole Togolese population because a convenience sample was used. Finally, as any self-reported study, respondents may be biased in their responses because of social desirability. However, despite these limitations, we believe our study is important as it explains some of the beliefs and thoughts of educated Togolese women about cervical cancer risk factors.

This study, unlike the previous ones, went beyond just ascertaining accurate knowledge of cervical cancer among educated women. By asking the women to explain why their listed factors were risk factors, we were able to fully understand misconceptions and half-truths about their knowledge. Hence, as a first step, education programs about cervical cancer risk factors are important to dispel these inaccurate beliefs. Also, findings of this study may be relevant to women in other African countries as studies have indicated low level of knowledge in several countries such as Ethiopia (Getahun et al., 2013), Nigeria (Umeora et al., 2012), and South Africa (Wellensiek et al., 2002). In addition, cervical cancer awareness programs and campaigns must be carefully developed and must not assume accurate knowledge in any specific subgroup if campaigns and programs are to be effective, given that educated women in our study had such inaccurate knowledge of the risk factors for cervical cancer. Furthermore, women with different levels of education should be trained as opinion leaders who will diffuse the knowledge of cervical cancer risk factors among their respective population groups. As mentioned earlier, we understand that screening is the best approach to preventing cervical cancer; however, in most of low-income countries, including Togo, cervical cancer screening is not readily available and accessible to women, and hence, we believe that knowledge of cervical cancer risk factors will be beneficial in reducing risk behaviors among women.

Declaration of Conflicting Interests

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