

RESEARCH COMMUNICATION

Community Education on Cervical Cancer Amongst Market Women in an Urban Area of Lagos, Nigeria

Kikelomo O Wright^{1*}, YA Kuyinu¹, FA Faduyile²

Abstract

Background: Cervical cancer is one of the most common forms of carcinoma among women worldwide, accounting for about 12% of all cancers. Tragically, studies have shown generally low awareness levels on its symptoms, risk factors and prevention. This study evaluated the effect of a health education program on knowledge of cervical cancer amongst women at risk in Africa. **Method:** This study was conducted in the city of Lagos, Nigeria, using a multistage sampling technique. Two model markets were chosen by simple random sampling method from a total of 10 local governments with model markets. One was designated the intervention/experimental group while the other was the control. Systematic sampling method was used in selecting 350 women comprising of 175 participants from each model market. A baseline survey on cervical cancer awareness and screening practices was carried out in both sample groups with the aid of interviewer-administered, structured and pre-tested questionnaires. Thereafter, respondents in the intervention group received sessions of community-based educational messages on cervical cancer and its prevention. Subsequently, participants in both groups were reassessed to evaluate the effect of the educational program. Data analysis was conducted with Epi-info statistical software. **Results:** Knowledge level was low on cervical cancer at baseline; only about 15% and 6.9% of participants in the intervention and control groups respectively had heard of cervical cancer. The most common sources of information were friends and media prior to the intervention. Significant increase in proportions were found in the intervention/experimental group on awareness of cervical cancer (61.7%), associated symptoms and risk factors such as early sexual debut, promiscuity and smoking. **Conclusion:** It is apparent that efforts must be put in place by all stakeholders in reaching women at risk of cervical cancer through well organized educational campaigns using culturally sensitive information, education and communication.

Key Words: Cervical cancer - prevention - knowledge - intervention

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Introduction

Cervical cancer is one of the most common forms of carcinoma among women worldwide, accounting for about 12% of all cancer cases globally, and if diagnosed early, it can be treated (WHO 2002). Cervical cancer is second only to breast cancer in terms of prevalence. (PATH 2000). Analysis of an indicator of disease burden which measures years of life lost (YLL), has shown that cervical cancer caused a loss of 2.4 million weighted YLL among women aged 25-65 years in developing countries as compared with 0.3 million YLL in the developed countries (Yang et al., 2004). Cancer of the cervix has significant morbidity and mortality when detected at an advanced stage (Swaddiwudhipong et al., 1999). Conversely, early identification of this disease can lead to a cure rate as high as 85% (Shanta, 2005)

The majority of deaths resulting from carcinoma of the cervix occur in the developing parts of the world with the highest age-standardized incidence rates in South America and Africa (PATH 2000). In Tanzania, age standardized incidence rate for cervical cancer is 68.8

cases per 100,000 women, in Haiti it is 87.3 while in North America, it is 7.7 cases (Ferlay et al., 2004).

The disparity in prevalence between the developing and developed worlds can be attributed to lack of effective cytological screening programs and awareness of cervical cancers (WHO 2002, PATH 2000, Chirenze et al 2001, Varghese et al 1999 and ACCP 2004). The discrepancy between developed and developing countries on cervical cancer incidence and mortality is also paralleled by differences in educational levels, knowledge of cervical cancer and its prevention (Wellensiek et al 2002). An educational intervention program on the prevention and control of cervical cancer amongst market women was here conducted and evaluated in Lagos, Nigeria.

Materials and Methods

Lagos State is one of the most economically viable and buoyant of the States of the Federation of Nigeria and can be described as the industrial and commercial nerve centre where over half of the country's commercial activities take place.

¹Department of Community Health and Primary Health Care, ²Department of Pathology and Forensic Medicine, Lagos State University College of Medicine, Ikeja, Nigeria *For Correspondence: loladewright@yahoo.com

This was a quasi-experimental study conducted between April and July in 2006 to assess the effect of an educational program on cervical cancer for market women in an urban area of Lagos. The study design comprised of 3 phases;

Phase I: This was the pre-intervention phase, which involved the collection of cross-sectional baseline information using interviewer administered questionnaires consisting of multiple-choice, open and close-ended items. The study instrument was divided into sections comprising of demographic information, reproductive and sexual history, knowledge of cervical cancer and Pap smear which were administered by trained female interviewers because of some sensitive questions.

Phase II: The intervention was the provision of health education on cervical cancer for the intervention / experimental group. Educational pamphlets were produced by the researchers based on the baseline findings. The content was written in both English and Yoruba (native) languages and was distributed at the end of each meeting to all participants.

Phase III: A post-test was carried out 3 months after the intervention to provide sufficient time for a leveling effect. The same instrument was used for data collection in both the preliminary survey and the post assessment.

Inclusion Criteria

Market women with lock up shops, which are registered with the relevant Local Government authorities.

Sample Size Determination

The sample size was determined using the formula for the comparison of proportions.(Varkevisser 1991)

$$n = \frac{[A+B] Z^2 \{ [P1 (1-P1)] + [P2 (1-P2)] \}}{[P1 - P2]^2}$$

Where n = sample size required in each group (double this for total sample).Prevalence (p2) of women who have heard of cervical cancer in Nigeria =15% (Ajayi and Adewole, 1998)Expected prevalence (p1) after the intervention = 35%.P1 = 1st proportionP2 = 2nd proportionP1 – P2 = size of the difference of clinical importance.A = significance level at 5% [1.96]B = power at 80% [0.84] Type of test = 2 sided.

$$N = \frac{(1.96+0.84)2[(0.35x0.65) + (0.15x0.85)]}{(0.35 - 0.15)^2}$$

$$= 69.6 \text{ (approximately 70)}$$

The calculated minimum sample size was 70 for each group (experimental and control) Over sampling was done to allow for non-responses and attrition. Therefore, it was hoped that a sample size of 175 for each group (totaling 350) would be sufficient to detect a difference both in knowledge and in practice of 20% between the 2 groups with a 95% confidence limit and 80% power. Set outcome measure include improved knowledge about cervical cancer.

A multi-stage sampling technique was used for recruiting the study participants. Two local government areas (LGAs), were randomly selected by balloting from a sampling frame of 10 LGAs with model markets. At the selected model markets, participants were recruited by the systematic random sampling method with an interval

of 3 calculated from the minimum number of lock-up shops in each market of 500. Using a sample size of 175 in each market, a sampling interval of approximately 3 was obtained. (N/n) Therefore, every 3rd shop was selected for the study.

Epi 6 statistical software was used for data entry and analysis was done using the following statistical packages; Epi-info 2002, Epi6 and Microsoft excel. Appropriate statistical tests of significance between pre and post intervention data were assessed using Chi-Square for categorical variables with level of significance set at P<0.05.

The Research and Ethical Committee of the Lagos University Teaching Hospital approved the study protocol. Permission was also sought from the necessary authorities and informed consent obtained from the participants whilst confidentiality was assured.

Results

The majority of respondents in the experimental (32.6%) and control (41.7%) populations were within the age range of 25-34 years. The proportional difference between both groups was not statistically significant (P = 0.467) (Table 1). The mean ages of respondents were 34.9+12.7 and 33.4+10.7 in both the experimental and control groups respectively. Using the student’s t-test for comparison of means, the computed t value was 1.18 (less than a critical ratio of 2.021) which showed that the mean ages of both populations were similar. Furthermore, about two-thirds of the respondents were married (Experimental; 72.0%, Control; 65.7%). The two populations were not statistically different as regards marital status ($\chi^2=6.68$, P>0.05).

The majority of respondents in both the experimental and control groups had completed their secondary education. However, the experimental group had more women with no formal education (12.6%) than the control group, which had 4.6%. The difference between the two

Table 1. Socio-demographic Details of Respondents

Findings	Experimental (n =175)	Control (n = 175)	Chi-Square
Age-Group			
18-24	30 (17.1)	32 (18.3)	
25-34	57 (32.6)	73 (41.7)	
35-44	39 (22.3)	33 (18.9)	$\chi^2 = 4.60$ P=0.467
45-54	33 (18.9)	27 (15.4)	
55-80	12 (6.9)	8 (4.6)	
Unknown	4 (2.3)	2 (1.1)	
Marital Status			
Single	33 (18.9)	48 (27.4)	
Married	126 (72.0)	115 (65.7)	$\chi^2=6.68$ P=0.154
Separated	6 (3.4)	4 (2.3)	
Divorced	0 (0.0)	2 (1.1)	
Widowed	10 (5.7)	6 (3.4)	
Educational Background			
No formal	22 (12.6)	8 (4.6)	$\chi^2=10.22$ P=0.069
Primary partial	6 (3.4)	10 (5.7)	
Primary	28 (16.0)	21(12.0)	
Secondary partial	28 (16.0)	30 (17.1)	
Secondary	70 (40.0)	77 (44.0)	
Tertiary	21 (12.0)	29 (16.6)	

Table 2. Baseline Awareness of Cervical Cancer

Findings		Experimental	Control	Chi-Square
Heard of? CC	Yes	26 (14.9)	38 (21.7)	$\chi^2 = 2.75$ P=0.097
	No	149 (85.1)	137 (78.3)	
Source	Hospital	4 (15.4)	7 (30.8)	$\chi^2 = 4.34$ P = 0.362 DF = 4
	Friends	14 (26.9)	14 (26.9)	
	Media	6 (17.1)	13 (37.1)	
	Books	3 (13.0)	10 (43.5)	
	Others	4 (3.3)	12 (10.0)	

Table 3. Comparison of Pre- and Post-intervention Awareness of Symptoms

Findings	Experimental		Control			
Heard of Cervical Cancer?						
Yes	26 (14.9)	108 (61.7)	46.8	38 (21.7)	29 (16.6)	-5.1
No	149 (85.1)	67 (38.3)		137 (78.3)	146 (83.4)	
Chi-Square	$\chi^2 = 81.31$		P = 0.000		$\chi^2 = 1.50$	P = 0.221
Recognition of Symptoms						
Diarrhea	3 (1.7)	41 (23.4)	21.7	3 (6.0)	3 (6.0)	0.0
Foul smell	8 (4.6)	87 (49.7)	45.1	16 (9.1)	13 (7.4)	-1.7
Bleeding ¹	2 (1.1)	55 (31.4)	30.3	5 (2.9)	11 (6.3)	3.4
Bleeding ²	0 (0.0)	66 (37.7)	37.7	7 (4.0)	10 (5.7)	1.7
Pain ³	5 (2.9)	49 (28.0)	25.1	11 (6.3)	13 (7.4)	1.1
Weight loss	9 (5.1)	54 (30.9)	25.8	10 (5.7)	12 (6.9)	1.2
Chi-Square	$\chi^2 = 46.9$		P=0.00		$\chi^2 = 2.58$	P=0.76

¹Post menopausal ; ²Post coital; ³Low abdominal

Table 4. Comparison of Pre- and Post-intervention Awareness of Risk Factors

Findings	Experimental		Control			
Recognition of Risk Factors						
STI	12 (6.9)	72 (41.1)	34.2	16 (9.1)	19 (10.9)	1.8
Promiscuity	10 (5.7)	71 (40.6)	34.9	19 (10.9)	15 (8.6)	-2.3
Early sex	7 (4.0)	64 (36.6)	32.6	9 (5.1)	12 (6.9)	1.8
Smoking	6 (3.4)	35 (20.0)	16.6	11 (6.3)	7 (4.0)	-2.3
OCPs	5 (2.9)	36 (20.6)	17.7	3 (1.7)	10 (5.7)	4.0
Hereditry	4 (2.3)	44 (25.1)	22.8	4 (2.3)	3 (1.7)	-0.6
Chi-Square	$\chi^2 = 1.61$		P=0.90		$\chi^2 = 5.84$	P=0.32
Who is at Risk of Cervical Cancer?						
Young	3 (1.7)	0 (0.0)	-1.7	1 (0.6)	0 (0.0)	-0.6
Middle aged	5 (2.9)	11 (6.3)	3.0	5 (2.9)	4 (2.3)	-2.3
Elderly	1 (0.6)	1 (0.6)	0.0	0 (0.0)	2 (1.1)	1.1
All SA	10 (5.7)	87 (49.7)	44.0	23 (13.1)	22 (12.6)	-0.5
Don't know	7 (4.0)	9 (5.1)	1.1	9 (5.1)	1 (0.6)	-4.5
No reply	149 (85.1)	67 (38.3)	-46.8	137(78.3)	146 (83.4)	5.1
Chi-Square	$\chi^2 = 97.75$		P=0.00		$\chi^2 = 9.82$	P=0.081

STI, Sexually transmitted infections; SA, Sexually active women

sample groups on educational levels was not statistically significant ($\chi^2=10.22$, $P>0.05$) (Table 1). Therefore, the demographic variables established comparability of both groups prior to intervention.

The two groups were comparable in terms of proportion of respondents who had heard of cervical cancer. Over three quarters of participants had not heard of cervical cancer pre-intervention. The difference was statistically insignificant ($P=0.097$) (Table 2). The most frequent source of information about cervical cancer baseline was "friends" constituting 26.9% in the experimental group. The option "others" included school, church, and public transport.

Post intervention, a significant proportion (61.7%) of the experimental group attested to having heard of cervical cancer in comparison to 16.6% of the control who responded in the affirmative. The percentage difference between baseline and follow-up of 5.1% in the control

population was not statistically significant (Table 3).

Table 3 also depicts respondents' correctness on some symptoms that may or may not be associated with cervical cancer. Statistically significant proportional increments in correctness were found in the experimental group post intervention ($P<0.05$). The control group had increment in correctness for some variables such as post menopausal bleeding (13.4%), post coital bleeding (1.7%), low abdominal pains (1.1%) and weight loss (1.2%). However, the percentage changes found in the control group were not statistically significant.

Less than 10% of respondents in the experimental group knew some of the risk factors for cervical cancer at baseline. Awareness appeared to improve after the educational program on risk factors such as promiscuity, early sexual debut and smoking. This was however not significant statistically. On the other hand, not much difference was observed in the control group (Table 4).

Concerning women at risk of cervical cancer, at baseline, only 5.7% and 13.1% of the experimental and control groups respectively, knew that all sexually active women are at risk of cervical cancer. In the post intervention phase, more women in the experimental group (49.7%) had correct knowledge with a percentage increase of 44%. This was statistically significant ($P=0.00$). The control group had fewer women (12.6%) who knew the correct answer in the post assessment with a percentage decline of 0.5%. This difference was not statistically significant ($P = 0.081$) (Table 4).

Discussion

This study was undertaken to evaluate the effectiveness of an educational program on cervical cancer among market women in an urban area of Lagos. No significant difference was found between the experimental and control groups on baseline parameters pertaining to knowledge. The prevalence for awareness on cervical cancer was 14.9% for the experimental and 21.7% for the control group. This is in consonance with a study conducted in Ibadan Nigeria amongst women aged 20-65 years of age at a general out patients unit where only 15% of respondents had heard of cervical cancer (Ajayi and Adewole, 1998)

This finding is slightly different from another cross sectional study on a female market population in Nigeria at which as high as 40.8% of study participants had heard of cervical cancer (Ogunbode and Ayinde, 2005). The high proportion was justified by an on-going awareness campaign and free cervical screening program by the State Government (Ogunbode and Ayinde, 2005). Another discordant report was seen amongst female undergraduates in Ibadan at which about 71% of participants had heard of cervical cancer (Ayinde et al., 2004). Understandably, knowledge was highest among medical students.

An effective cancer control program integrates activities covering all levels of prevention. Health education being a component of primary prevention is aimed at promoting positive behavioral change of individuals or groups of people to safeguard their own health. It involves the use of a combination of methods

based on the needs, interests, attitudes and beliefs of target populations (WHO 1998). Therefore; primary prevention for cancer of the cervix includes information on fewer partners, barrier methods of contraception, abstinence from long-term use of oral contraceptive pills, avoidance of partners with genital or rectal warts and smoking cessation (Yu and Rymer 1998).

To change behavior and personal practices permanently, it is necessary to give proper information and encourage logical attitudes through health education programs (WHO 1998). Cancer education is based on the premise that susceptibility to diseases can be linked to certain integral determinants such as awareness and attitudes on related values and beliefs, which are known as predisposing factors (WHO 1998). Generally, cancer education programs range from promotion of cancer awareness to promotion of early detection and finally changes of risk behaviors (WHO 1998).

A mobile cervical cancer-screening program in rural Thailand aimed at improving coverage of women at risk of the disease, provided health education and invitations for screening to the target population over a period. Marked increases were observed in both knowledge of cervical cancer and use of pap smear screening during the follow up period (Swaddiwudhipong et al., 1999).

A survey carried out in North Carolina on the effectiveness of health education in increasing screening for cervical cancer among Eastern-band Cherokee Indian women showed that those who received the educational programs responded favorably in terms of greater knowledge and more likelihood of having pap smears done in comparison to those who did not receive the educational program. (Dignan et al., 1996)

On the risk factors for cervical cancer, despite proportional increments in correct knowledge amongst the experimental group post intervention in this study, the differences noted were not statistically significant. A telephone survey was conducted among Latinas and Anglo women to assess the influence of their beliefs on their use of pap smear services. Knowledge level was above average (53%) for the Latina immigrants who believed that early sexual initiation and other medically acceptable factors constituted risks for acquiring the disease. This was in contrast to the U.S born Latinas and Anglo women who had proportions of 41 and 39% respectively on knowledge of risk factors for cervical cancer. ($P < 0.01$) Sexual activity during menstruation was perceived as a risk according to 56% of Latina immigrants, 10% of U.S born Latinas and 3% of Anglo women ($P < 0.01$) (Hubbell et al., 1996).

Results of this study show that people in a community can significantly improve their knowledge and understanding of cancers, and specifically cancer of the cervix through a well managed tuition. This study was able to establish the benefits of an organized health education campaign on awareness levels of women at risk. On the whole, significant increase in proportions on awareness levels of cervical cancer, attest to a favorable outcome following the intervention strategy in the experimental population.

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