

# Impact of interventional documentary on knowledge of cervical cancer risk factors among rural women in North-Central Nigeria

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## Abstract

**Background:** In view of the growing concern about cervical cancer prevalence and mortality rates, this study assessed the impact of interventional documentary on knowledge of cervical cancer risk factors among women in North-central Nigeria.

**Data Source and Methods:** The study adopted a quasi-experimental design and survey to study 522 reproductive-age women. The stratified sampling technique was used to select six local government areas. Descriptive statistics, chi-square and binary logistic regression were used in data analysis.

**Results:** There was no significant difference in pre-interventional knowledge of risk factors in the study and control groups  $p > 0.05$ . There was significant difference in pre- and post-interventional knowledge in the study group  $p < 0.05$ . 'Number of children' 'marital status', and 'number of times married' predicted aggregate knowledge at post-intervention.

**Conclusion:** The intervention documentary was effective in knowledge increases, but there was no indication that knowledge increases lead to less risky behaviour. Documentaries should harp on self-efficacy and collective monitoring of adherence to non-risky behaviour.

**Keywords:** cervical cancer, risk factors, documentary, knowledge, women.

## Introduction

Cervical cancer, as a dreaded disease, is on the cusp of becoming the defining illness of reproductive-age women in developing countries (Ali et al., 2010). The disease is posing serious challenges to the efforts of international bodies such as the WHO and African Union towards improving the health of women and girls. For instance, articles 10, 11, 51 and 73 of the African Union Agenda 2063 (popular version) contain steps for removing all barriers to quality health and education for women and girls, ensuring high standard of living, accessing basic services including health and nutrition, among others. The Agenda recognizes women as important drivers of Africa's renaissance.

Studies in Nigeria indicate that cervical cancer is the commonest malignancy of the female genital tract, accounting for an average of 62.3% of gynecological malignancies (Oluwole et al., 2017; Mohammed et al., 2006; Aboyeji, Ijaiya and Jimoh, 2004). Estimates about infection rate, prevalence, mortality rate and exposure to risk factors call for concern (Abiodun et al., 2014). Information from the Ibadan Cancer Registry at the University College

Hospital, Ibadan, Nigeria and the Lagos State University Teaching Hospital, Lagos, Nigeria, show that cervical cancer is second only to breast cancer in prevalence (Olufunsho et al., 2013). The disease accounts for 403 (12.3%) of the 3,288 cases in 18 different types of cancers considered.

Early detection of susceptibility and avoidance of risk factors of cervical cancer have been very vital in the fight against it to date. This is why awareness, knowledge and attitudes to cervical cancer risk factors, prevention and general health literacy are placed at a premium (Ratzan, 2001; WHO, 2014a). Awareness and knowledge of risk factors can lead to early detection of the disease, reduction in mortality and a cure rate as high as 85% (Wakefield, Loken and Hornik, 2010; PATH, 2000). Existing studies however indicate that there is low awareness and knowledge of cervical cancer and poor attendance at screening tests among women (Oluwole et al., 2017; Ingwu, 2016; Abiodun, Fatungase & Olu-Abiodun 2014; Ali et al., 2010; Eaker, Adami & Sparen, 2001; Gharoro & Ikeanyi, 2006; Wakefield, Loken, and Hornik, 2010). In addition, very few studies appear to

have focused on cervical cancer in North-central Nigeria (e.g. Ijaiya, Aboyeji and Buhari, 2004; Acinth et al, 2012 cited in Oluwole et al., 2017; Ingwu, 2016). Remarkably, too, the studies within and outside North-central Nigeria have focused more on conventional media and the internet as sources of information.

The documentary, as a communication strategy, still awaits needed attention despite its great potential for health communication. It is highly amenable to the use of local languages; it uses narratives and emotional cues, and therefore has the force of interpersonal touch and real life images. Its use in interpersonal and small group communication contexts gives it a decisive advantage over mainstream media (Sheila et al., 2017). This study assesses the use of documentary as an intervention strategy in the fight against cervical cancer in North-

central Nigeria. The study uses pre- and post-intervention documentary data to assess the impact of the documentary on knowledge of cervical cancer risk factors.

#### Literature review and theoretical framework North-central Nigeria and susceptibility to cervical cancer risk factors

The North-central region, also called the middle belt in Nigeria, comprises six states, namely, Benue, Kogi, Kwara, Nasarawa Niger and Plateau States. The Federal Capital Territory of Nigeria (FCT) is also located in the region, but it is not viewed as a state. The sizes of the various states in square meters are as follows: Benue- 12 031.25, Kogi- 10 838.67, Kwara- 13 947.27, Nassarawa- 11 224.61, Niger- 26 923.83 and Plateau states- 10 604.30.

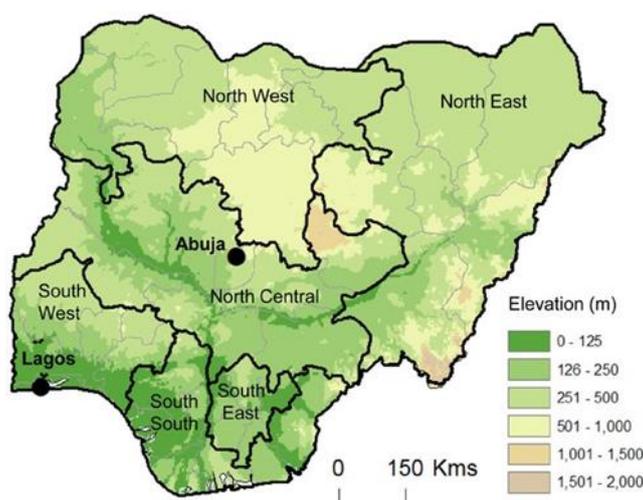


Figure 1: Nigeria by Regions. Source: Okorie, et al (2013)

In North-central Nigeria, with a population of 25,688,282 (NBS, 2017), approximately 13% (3,339,477) are estimated to be women of reproductive age. In the region, the burden of cervical cancer is increasing, with over 10% testing positive to a cervical cancer test (cytology) suggesting that they have cancerous lesions on their cervixes (Durowade et al., 2012; NBS, 2016). Unfortunately, poverty and illiteracy induce women who show symptoms of the disease to mistake the symptoms for other illnesses (Ahmed et al., 2013). Studies on northern Nigeria generally and the North-central particularly indicate high incidence of poverty, illiteracy, polygamy, early marriage and under-age child birth as routine practices that predispose women in the region to cervical cancer (WHO, 2014a; PATH, 2000). According to the National Literacy Survey (2010), women in the North-central (47.3% and 52.8%) are only better than those in the

North-east (33.4% and 51.4%) on adult literacy rate in English and any other language respectively.

Similarly, only North-west and North-east women are more likely to marry prematurely (at ages less than 18) when compared with women from the North-central (Ifelunini et al., 2018). Early marriage occurs far more in the rural areas than in the urban areas. The lowest age at birth in the region is 12 years, and about 60% of married women, by 2010, were of low overall autonomy (Omisakin and Alabi, 2018; Olufunmilayo et al., 2013). In addition, the United Nations Development Programme's Multidimensional Poverty Index mentions no state in the North-central zone among the 10 states with the least poverty indices in Nigeria (Amaefule, 2018, Emejo, 2018).

### Knowledge of cervical cancer in Nigeria

The prevalence rate of, and exposure to, cervical cancer risk factors are largely dependent on health literacy, especially with regard to how well women take informed actions concerning their own health (Green and Kreuter, 1992). Studies have proved the centrality of cognitive skill in motivation of women towards gaining access to, understanding and using information in ways that promote and maintain good health (WHO, 2014b). This is especially so because cervical cancer needs early detection for effective and responsive treatment (Nugent and Moore; Abiodun et al, 2014).

The foregoing makes the case for an intervention strategy that can boost the cognitive skills of rural women on cervical cancer risk factors and early detection (WHO, 2014b). Accordingly, the aim of interventional documentary, in line with the African Union Agenda 2063 (2015), is to stimulate preventive health protection measures such as awareness creation campaigns about health related issues. Rural women are especially in need of such interventions because the at-risk population is higher among them. Estimate show that less than 10% attend screening tests (pap smear), while as many as 15% of rural women in South-west Nigeria are yet to hear about cervical cancer. In addition, the disparity in prevalence rates between urban and rural areas in Nigeria continues to widen (Nugent and Moore; WHO, 2014b; Mohammed et al., 2006; Wright, Kuyinu and Faduyile, 2010; Durowade et al, 2012; Parhizkar et al., 2013).

Researchers also observe that educational, cultural and attitudinal barriers are reasons for low screening prevalence in developing countries (Durowade et al, 2012; Parhizkar et al., 2013; WHO, 2014b; PATH, 2000; Varghese et al, 1999; ACCP, 2004). This study thus measures the effectiveness of interventional documentary on knowledge of cervical cancer among women in North-central Nigeria. The predictive factors of knowledge of risk factors are examined.

### Documentary as an intervention strategy in cervical cancer knowledge and prevention

Documentary has been in use over the years as a tool of health campaign. Its application in cancer knowledge and prevention has however been rare, and its effectiveness seldom measured. A documentary is a nonfictional motion picture, which uses aspects of reality for the instruction and education of a target group. It can be shown on television or as films in community theatres.

Documentary is based on the primary expectation of a more direct relation with the real world. Documentaries have been useful in health communication in the areas of influencing thought and opinion, reality forming, concepts of truth, danger and risks (Brylla and Kramer, 2012).

As rhetorical, narrative and emotional forms, documentaries combine factual evidence, arguments, documentation and elements of narration, audio-visual displays and creativity, appeal to imagination and identification. In sum, it is a rhetoric of cognition and emotion, which plays an extremely important role in forming people's social and cultural imagination (Bordwell, 1987; Gottschall, 2012; Bluck, 2003; Van Dijk, 2007; Erll, 2017).

In comparison with fiction films, documentary genres, as Bondebjerg (2014) observes, are very much located in our mind as stories and arguments about the affairs in the real world, real events, real people and actual problems of the world we live in. Fiction tries to do the same, but by indirectly using non-real situations to help viewers translate the fictional world into a story about something in reality. This is because fiction is based on a more indirect, metaphorical relation to reality.

Documentary films have greater potential than fiction films to "impact attitudes towards interaction with the world, helping to construct our social, cultural and individual identities" (Brylla and Kramer, 2012:2). Sheila et al. (2017) observe that the narrative film was more effective than the non-narrative film with the same facts at increasing cervical cancer-related knowledge, attitudes, behavioural intentions, and perceived norms among white women and Mexican Latinos aged 25-45 in the US. Abiodun et al. (2014:14) attest to the efficacy of multimedia health education based on a movie in boosting the awareness, knowledge and perception about cervical cancer among adult rural women in Nigeria. They note that "knowledge and perception of cervical cancer in rural communities can be improved by giving appropriate health education intervention".

### Social cognitive theory

The social cognitive theory was developed by Albert Bandura throughout the 1960s as an interpersonal level theory explaining the dynamic interaction between people's individual characteristics, people's conducts and their environment (Winters, Petosa, and Charleton, 2003; Semple et al., 1999; Cohen et al., 2006; Health Behaviour and Practice).



**Figure 2: Reciprocal determinism. Source: Health behaviour and Practice, nd)**

The theory uses constructs called reciprocal determinism, collective efficacy, self-monitoring and self-efficacy. In reciprocal determinism, behaviour change is influenced by personal factors (Figure 2) as well as by the attributes of the behaviour itself (Winters, Petosa, and Charleton, 2003). In collective efficacy, communication interventions are expected to grow the capacity of groups to perform desired actions.

In self-monitoring, individuals exposed to communication intervention develop the capacity to control themselves, through self-monitoring, goal-setting, feedback, self-reward, self-instruction and enlistment of social support (Health behaviour and Practice). Self-efficacy entails an individual's capacity to perceive the benefits of performing certain behaviour, making self-efficacy the most important determinant of behaviour change. Therefore, any behaviour towards cervical cancer information, for instance, would depend on the behaviour attributes of rural women and the benefits derivable from behaviour change.

The processes undertaken in checking the benefits to be derived from behaviour change are cognitive processes. As noted by scholars (Brylla and Kramer, 2012; Bordwell, 1985; Smith, 2013), the application of the cognitive theory in film is based on its capacity, as text, to reflect or construct reality as well as on its capacity to work in consonance with the human cognitive system and its interaction with the environment. Based on the cognitive theory, film makers have shown how the human mind and body are strongly pre-disposed to narrative structures and to certain emotional structures that are triggered when people are confronted with stories, images and human interaction (Abiodun et al, 2014; Plantinga, 2009; Bondebjerg, 2014).

Cervical cancer interventional documentaries, as an aspect of social and behavioural change communication, aim to help viewers to develop their self-efficacy towards believing that they have the capacity and also have many benefits to gain by recognizing and making effort to avoid the risk factors and to seek medical help when necessary (Hornik 2002; UNICEF, 2013; Bello, 2015).

## Data and methods

The study adopted a mix method of quasi-experimental design and survey. The population of the study was drawn from consenting women of reproductive age (15-45 years) from six rural local governments (selected based on basic amenities and institutions) one for each of the six states of the North-central selected through a stratified random sampling. The states (and local governments) are Benue (Otukpo), Kogi (Dekina), Kwara (Kaiama), Nasarawa (Kokona), Niger (Suleja), and Plateau (Bassa).

Trained research assistants helped in identifying women leaders in each local government, who compiled a list of women willing to participate in the study and also scheduled meetings. A total of 261 participants each for the study and control groups were selected for the study, totaling 1,044 participants. The study group was exposed to the documentary two times within a three-month interval before the post intervention to allow for a leveling effect. Respondents in the study group completed the questionnaire before being shown the pre-intervention documentary, while the control group was not exposed to the intervention at all.

A 30-minute audio-visual documentary was shown to the study group using a projector. The contents were played in local languages using narration, moving and still pictures. Knowledge of risk factors was the dependent variable (ability to identify the risk factors, process of diagnosis and treatment). The risk factors used in the study include number of children, number of sex partners, age at first marriage, age at first birth, use of contraceptives. Correct answers were scored one-point, while incorrect ones were scored zero. The maximum score obtainable was divided into three to reflect good, fair and poor knowledge. Cross analysis was used to calculate the influence of the predictive factors (i.e. independent variables, e.g., demographic variables) on knowledge of cervical cancer.

The same questionnaire was used for pre- and post-intervention. The reliability co-efficient was 0.76, using the Cronbach Alpha test (test-retest). The questionnaire was certified for ethical compliance by

the Ethics Committee of the Kogi State University Teaching Hospital, Anyigba. Frequency distribution tables, mean distributions, standard deviation and t-test statistic were used to analyze data. A multivariate, logistic regression was used to identify the main predictive factors. A confidence limit of 95% was used in this study with a p-value of < 0.05.

### Results

Tables 1 and 2 below present the socio-demographic data of respondents. Although 522 participants (261 for each group) took part at the pre-intervention stage, 480 of them had validly completed copies of the questionnaire at the post-intervention stage (242 for the study and 238 for the control group). The mean ages of respondents in the study and control groups were  $35.18 \pm 6.33$  and  $34.47 \pm 7.25$  years respectively. Women in the age group 40-45 years

had the largest representation in both the study (33.3%) and the control (30.3%) groups. More than half (55.6% each) of respondents in both the study and control groups had their first child between the ages of 20 and 24 respectively.

A little over eight per cent (8.8%) of respondents in the study group had their first pregnancies age 15 and less, while 91.2% had their first pregnancies at age 16 and more. The chi-square calculated was 1.029 while the t-test calculated was 3.518, showing a significant difference in the mean ages at first pregnancy in both the study and control groups, with  $p = 0.001$ , whereas there was no significant difference in their proportion,  $p = 0.310$ . In addition, 157 (60.2%) and 147 (56.3%) had less than five children in the study and control groups while 104 (39.9%) and 114 (43.7%) had more than 5 children in the study and control groups.

**Table 1: Age and Economic Status of Respondents**

Age	Study (F) (%)	Control (F) (%)	$\chi^2/t$	P
15 – 19	0 (0.0)	4 (1.5)		
20 – 24	13 (5.0)	23 (8.8)		
25 – 29	34 (13.0)	36 (13.8)		
30 – 34	63 (24.1)	57 (21.8)		
35 – 39	64 (24.6)	62 (23.8)		
40 – 45	87 (33.3)	79 (30.3)	7.552	0.183
Total	261 (100.0)	261 (100.0)		
Mean $\pm$ SD	$35.18 \pm 6.33$	$34.47 \pm 7.25$	1.192	0.234
Age at first child	Study (%)	Control (%)	$\chi^2/t$	P
15 – 19	64 (24.5)	76 (29.1)		
20 – 24	145 (55.6)	145 (55.6)		
25 – 29	28 (10.7)	34 (13.0)		
30 – 34	18 (6.9)	2 (0.8)		
35 – 39	4 (1.5)	4 (1.5)		
40 – 45	2 (0.8)	0 (0.0)	16.409	0.006
Total	261 (100.0)	261 (100.0)		
Mean $\pm$ SD	$21.72 \pm 4.85$	$21.09 \pm 3.49$	9.815	<0.001
Monthly income	Study (%)	Control (%)	$\chi^2/F$	P
< 18000	249 (95.4)	259 (99.2)		
$\geq$ 18000	12 (4.6)	2 (0.8)	7.340	0.007
Total	261 (100.0)	261 (100.0)		
Mean $\pm$ SD	$4.27 \pm 2.36$	$4.33 \pm 2.06$	0.821	0.412

Table 2: Ethnicity, Marital Status and Educational Level of Respondents

Ethnicity	Study (%)	Control (%)	$\chi^2$	P
Hausa	5 (1.9)	21 (8.0)		
Yoruba	7 (2.7)	17 (6.5)		
Igbo	17 (6.5)	12 (4.6)		
Igala	99 (37.9)	34 (13.0)		
Others	133 (51.0)	177 (67.8)	52.887	< 0.001
Total	261 (100.0)	261 (100.0)		
Marital Status	Study (%)	Control (%)	$\chi^2$	P
Single	6 (2.3)	22 (8.4)		
Married	213 (81.6)	218 (83.5)		
Divorced	11 (4.2)	7 (2.7)		
Widowed	31 (11.9)	14 (5.4)	16.512	0.001
Total	261 (100.0)	261 (100.0)		
Level of Education	Study (%)	Control (%)	$\chi^2$	P
Primary	137 (52.5)	121 (46.4)		
Secondary	71 (27.2)	72 (27.6)		
Tertiary	27 (10.3)	22 (8.4)		
Uneducated	21 (8.0)	38 (14.6)		
Others	5 (1.9)	8 (3.1)	7.100	0.131
Total	261 (100.0)	261 (100.0)		

There was no significant difference in the mean based on the number of children of respondents in both the study and control groups with  $p= 0.757$  and their proportion,  $p=0.375$  (Table 2). The majority, 249 (95.4%) and 259 (99.2%) of the respondents in both the study and control groups earned less than the federal minimum wage of Nigeria, which was 18,000 naira at this writing. With a  $p$  value of 0.065, there

was no significant difference in the study and control groups based on type of occupation divided between government workers and non-government workers. The majority (81.6% and 83.5%) of respondents in both groups were married. The level of education in both groups was low with most of the respondents (52.5% and 46.4%) attaining primary education.

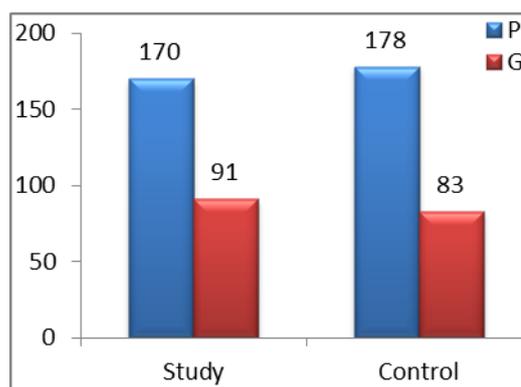


Figure 3: Pre-interventional documentary aggregate knowledge of respondents about cervical cancer  $\chi^2=0.552$ ,  $p= 0.458$

There was no significant difference in the pre-intervention aggregate knowledge of respondents in the study and control groups: 65% (study group) and 68% (control group). On the knowledge of cervical cancer before and after the interventional documentary, the Chi-square calculated (164.606) and the P value calculated ( $0<0.001$ ) indicated a

significant association between knowledge at the pre-intervention and knowledge at post-intervention level. Respondents in the study group who said 'yes' to knowing about the disease moved from 39.8% to 99.6% of the total respondents while those who said 'yes' in the control group maintained the 48.3% in both pre- and post-documentary intervention. For

those who said ‘no’, the pre-intervention study score was 60.2%, which improved by 0.4% at the post-intervention. For the control group, the score

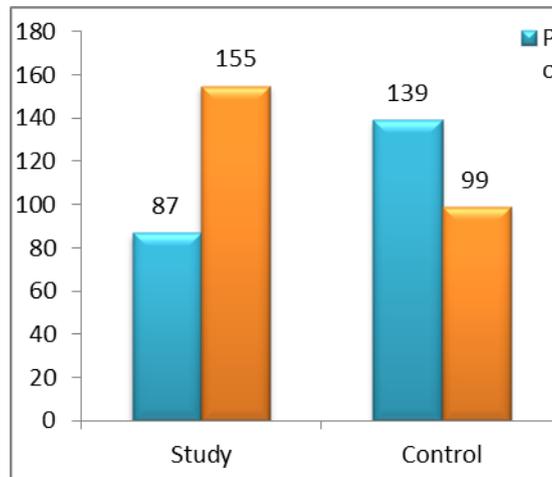
remained 51.7%, which was the score for those who had said ‘no’ (Figure 3).

**Table 3: Documentary Effects at Post-Intervention Compared with Pre-Intervention Knowledge**

Knowledge of cervical cancer	Study Group		Control Group		$\chi^2/ p$
	Pre (%) n(261)	Post (%) n(242)	Pre (%) n(261)	Post (%) n(238)	
Poor	166(63.6)	73(30.2)	116(61.7)	123 (51.7)	
Fair	84 (32.2)	56(23.1)	82(31.4)	97 (40.7)	
Good	11 (4.2)	113 (46.7)	18 (6.9)	18 (7.6)	92.608/
Total	261 (100)	242 (100)	261 (100)	238 (100)	<0.0001

Those who had good knowledge increased to 46.7% from 4.2%, while fair knowledge reduced from 32.2% to 23.1% after the intervention in the study group (Table 3). Those who indicated poor knowledge on the other hand reduced to 30.2% from 63.6%. In the control group, poor knowledge

reduced from 61.7% to 51.7%. Good and fair knowledge increased from 6.9% to 7.6% and 31.4% to 40.7% respectively. Chi-square calculated (92.608) and the P value calculated (<0.0001) showed a significant relationship between the pre- and post-interventional data.



**Figure 4: Post intervention aggregate knowledge of risky cultural practices**  
 $\chi^2=24.279, p= < 0.001$

After the intervention, the assessment of knowledge of risk factors indicated significant increase in good knowledge in the study group relative to the control group, hence  $p= < 0.001$ . Poor knowledge of risk factors (93.1) improved by about 30% in the study group and in the control group it moved from 90.8% to 88.7% (Figure 4). At the pre-intervention stage, most of the women rejected the use of contraceptives or any other birth control methods despite having, on average, between 4 and 7 children. They also expressed inability to resist their spouses’ quest for multiple sexual partners for fear of losing them (their spouse) completely.

Good knowledge of risk factors improved by over 30% from 6.9% to 39.7% in the study group and also from 9.2% to 11.3% in the control group. Chi-square calculated (50.512) and P value (<0.001) showed a significant negative relationship between data at pre-intervention and data at post-intervention on the desire of respondents to have more children: 28.3% of the respondents said ‘yes’, while 71.3% said ‘no’ at post intervention; 33.9% said ‘yes’, while 66.1% said ‘no’ at pre-intervention. In the control group, 55.9% said ‘yes’ at pre-intervention, while 44.1% said ‘no’. Upon return with the same questionnaire (without a previous intervention), 60.1% said ‘yes’, while 39.9% said ‘no’. Chi square

and P value calculated showed no statistically significant relationship between knowledge of risk factors and the marital status of respondents.

**Table 3: Predictors of respondents' aggregate knowledge of risk factors at post intervention**

Predictors	$\beta$	$\rho$	Odd Ratio	95% C.I	
				Lower	Upper
Planned to have more child	-0.668	0.016	0.513	0.298	0.882
Number of children ( $\leq 4$ )	0.761	0.006	2.141	1.245	3.682
Marital Status (Married)	0.298	0.410	1.347	.663	2.738
Number of times married (Once)	0.170	0.616	1.185	.611	2.298
Age at circumcision ( $\leq 1$ )	-4.373	< 0.001	0.013	0.003	0.053
Sex with an uncircumcised person	-2.006	< 0.001	0.127	0.053	0.303

After adjusting for confounding variables using logistic regression, number of children, marital status and number of times married were found to still significantly predict knowledge of cervical cancer risk factors among respondents. A further look at each of the significant predictors reveals that there were 76% chances of having less than four children to be responsible by two folds of having good knowledge about cervical cancer risk factors among respondents. There were also 1.347 likelihood of women who were married to be knowledgeable about cervical cancer. Respondents who married only once had 1.185 chances of good knowledge about cervical cancer. Those who married only once had a tendency to better knowledge of risk factors than those who married more than once. Sex and religion were less likely to have an effect on knowledge and attitudes to cervical cancer than culture.

### Discussion

The study examined the impact of cervical cancer interventional documentary on the knowledge of cervical cancer risk factors among reproductive-age women in North-central Nigeria. Responses related to parity among respondents in the study and control groups,  $4.27 \pm$  and  $4.33 \pm 2.06$ , show that all the respondents had at least 2 and at most 7 children. The majority of respondents in the study and control groups earned less than 18, 000 a month (about US \$40), and this income level is generally regarded as low in Nigeria, being the minimum age at this writing. Most of the respondents in both groups had primary education. Some studies indicate that respondents in cervical cancer awareness tests were also poorly educated (Parhizkar et al, 2013; Wright et al., 2010).

Low level of education was witnessed among the majority of respondents at first sexual experience.

Low income and low educational levels are some of the factors that predispose women to cervical cancer as indicated in some studies (Oluwole et al., 2017; Ingwu, 2016; Abiodun, Fatungase and Olu-Abiodun 2014). The low level of knowledge witnessed at the pre-intervention documentary stage increased significantly at the post-intervention stage among the study group, but not among the control group. Other studies using other media (not documentary) also report significant increases in knowledge between pre-intervention and post intervention (Parhizkar et al., 2013; Wakefield, Loken and Hornik, 2010).

While these studies report different levels of increases in awareness and knowledge between pre-intervention and post-intervention, the increases show that communication is a significant factor in raising the cognitive level of respondents (Wakefield, Loken and Hornik, 2010). In the present study, there was increase in knowledge in the control group at the post-intervention stage, but it was not significant. The increase, however, may be attributed to other sources of information such as places of worship, markets and interpersonal communication during the three-month interval as revealed in some questionnaire items that asked other sources of information on cervical cancer.

The mean age at which respondents had their first child was  $21.72 \pm 4.85$  and  $21.09 \pm 3.49$  in the study and control groups respectively. This was close to the mean age of first conception which was  $21.58 \pm 5.57$  and  $20.13 \pm 3.65$  in the study and control groups respectively. This finding can be related to the

mean age of respondents' first sexual experiences even though they were not expressly asked the question. It can therefore be assumed that the mean ages as at first sexual exposure in the study and control groups range between 14 years and 25 years.

The lower range of first exposure to sex is on the danger zone within the boundaries of the risk of developing cervical cancer. The age as at first exposure to sex is noteworthy because knowledge of cervical cancer risk posed by early exposure to sex among women can sound a note of caution to adolescent girls who have such knowledge (Salaudeen, 2012). Studies show that under-age child birth is high in Northern Nigeria and the lowest age at first birth in the region is 12 years. In addition, about 60% of currently married women are of low autonomy (Omisakin and Alabi, 2018; Olufunmilayo et al., 2018).

There was however no significant positive difference in knowledge of risky cultural practices between pre-intervention and post interventions in the study group. For instance, despite showing significant increases in the knowledge of the risk factors at the post-intervention stage, the majority of women in the study group still indicated interest in having more children after their fourth or fifth child. They attributed this to the cultural belief that God gives children and no woman should overrule her husband on the number of children to have.

The women thus still resisted the use of pills or any form of contraceptive at the post-intervention survey. Analysis also shows that 'number of children' 'marital status' and 'number of times married' predict the chances of having good knowledge after the interventional documentary was administered to the respondents. Similarly, the study found no significant relationship between knowledge gathered from the documentary intervention and risky cultural practices like having more than one husband and having multiple sex partners. This is in line with findings from Wright (2012) where knowledge gathered did not significantly affect the cultural practices of the respondents. This may be related to the reasons for which the United Nations Development Programme's Multidimensional Poverty Index (Amaefule, 2018, Emejo, 2018) numbered the North-central zone among the poorest in Nigeria and at-risk population with regard to getting infected with cervical cancer or having cancerous growth in the cervix.

## Conclusion

The interventional documentary proved effective in knowledge increases, but there was no indication that knowledge increases lead to less risky behaviour.

The women still reported lack of readiness to reduce the number of children or to stop their spouses from having multiple sexual partners. Number of children, low autonomy for women, low education and low income had significant impacts on knowledge of cervical cancer risk factors. This has implications for the cognitive theory as well as for the efforts of the African Union to remove barriers to quality health for women in Africa as enshrined in Agenda 2063, articles 10, 11, 51, and 73.

Use of cognitive strategy should consider cultural orientations to ensure that documentaries harp more on self-efficacy, self-monitoring and collective monitoring. Perceived benefits of positive actions should be emphasized and embedded within the strategies for self and group monitoring. During screening tests, health agencies can classify women into groups to monitor each other on attitudes and practices towards risk factors. Designated screening centers can attach benefits to high-level displays of cognitive and behavioural skills on cervical cancer. Government policy and programmes should boost the practice of birth registration, scale up the number of health centers, and move screening centers closer to areas such as markets and places of worship. Future studies can test knowledge against attitudes and practices of women towards cervical cancer.

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