

Effect of Nursing Intervention on Mothers' Knowledge of Cervical Cancer and Acceptance of Human Papillomavirus Vaccination for their Adolescent Daughters in Abuja – Nigeria

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Received: May 24, 2017, Accepted: November 20, 2017

ABSTRACT

Objective: The aim of this study is to evaluate the effect of nursing intervention on mothers' knowledge of cervical cancer and acceptance of human papillomavirus (HPV) vaccination for their adolescent daughters in Abuja, Nigeria. **Methods:** This was a quasi-experimental study that utilized two groups pre and post-test design. The study was carried out among civil servant mothers in Bwari (experimental group [EG]) and Kwali (control group [CG]) Area Councils of Abuja, Nigeria. One hundred and forty-six women who met the inclusion criteria were purposively selected for this study. EG consists of 69 women while 77 are from CG. The intervention consisted of two days workshop on cervical cancer and HPV vaccination. Descriptive and inferential analyses of the data were performed using SPSS software 20 version. **Results:** The mean age of the respondents was 35 years \pm 6.6 in the EG and 41 years \pm 8.2

in the CG. The mean knowledge score of cervical cancer was low at baseline in both EG (9.58 ± 7.1) and CG (11.61 ± 6.5). However, there was a significant increase to 21.45 ± 6.2 after the intervention in EG ($P < 0.0001$). The baseline acceptance of HPV vaccination was high in EG after intervention from 74% to 99%. Exposure to nursing intervention and acceptance of HPV vaccination was statistically significant after intervention ($P < 0.0001$). **Conclusions:** The nursing intervention has been found to increase mothers' knowledge of cervical cancer and acceptance of HPV vaccination. It is therefore recommended that nurses should use every available opportunity in mothers' clinic to educate on cervical cancer and HPV vaccination.

Key words: Acceptance, cervical cancer, human papillomavirus vaccination, knowledge

Access this article online

Quick Response Code:



Website: www.apjon.org

DOI:
10.4103/apjon.apjon_75_17

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Cite this article as: Odunyemi FT, Ndikom CM, Oluwatosin OA. Effect of Nursing Intervention on Mothers' Knowledge of Cervical Cancer and Acceptance of Human Papillomavirus Vaccination for their Adolescent Daughters in Abuja – Nigeria. *Asia Pac J Oncol Nurs* 2018;5:223-30.

Introduction

Cancer remains a global threat to women's health, which has claimed so many lives globally.^[1] Some cancers are known to be peculiar to women, among which cervical and breast cancer are most reported. Globally, cervical cancer is the fourth most frequent cancer in women with an estimate of 14.1 million new cases and 8.2 million cancer-related deaths in 2012 compared to 12.7 million and 7.6 million, in 2008. Of the estimated, more than 270,000 deaths occur from cervical cancer every year, and 85% of these occur in less developed regions.^[2]

Cervical cancer is the second most common killer cancer among Nigeria women, and about 9,659 die annually.^[3] This has contributed to mortality rate among women of child bearing age. The World Health Organization reports that without immediate action, the global number of deaths from cancer will increase by about 80% by 2030, with most occurring in low-and middle-income countries, Nigeria inclusive.^[4] In sub-Saharan Africa, 34.8 new cases of cervical cancer are diagnosed per 100,000 women annually, and 22.5/100,000 women die from the disease.^[5]

Similarly a study among fisherwomen communities in Indian, documented, advanced age, lack of education, low socioeconomic status multiparty among others as factors increasing vulnerability to cervical cancer.^[6]

Human papillomavirus (HPV), the major cause of cervical cancer is reported to be one of the most common sexually transmitted infection which causes a spectrum of disease worldwide, ranging from warts to cancer.^[7] It is also implicated with the majority of cases of cervical cancer among sexually active adolescents and young women.^[8] Globally, 75% of individuals will experience an HPV infection at least once in their lifetime. The two most frequent high-risk HPVs (types 16 and 18) were reported worldwide, including the Middle East as well as North African countries which are the most important in the pathogenesis of cervical cancer.^[8]

In Nigeria, a study among women screened for cervical cancer in the Federal Capital Territory shows the prevalence of HPV to be 37%^[9] compared to the estimated global prevalence of 11.7%.^[10] Similar study in Nigeria also reported high HPV prevalence of 26.3%, across all female ages which are the highest among 15-23 years old.^[11] This shows that Nigeria is not left out of this global threat to women's health. This statistics clearly indicate the need for urgent attention to address the cardinal preventive measure (vaccination) against cervical cancer. The National policy of cervical cancer prevention includes, vaccination and screening.^[12] However, more emphasis over the years has been on cervical cancer screening while HPV vaccination has not received such attention.

In view of the high burden of cervical cancer, a proactive commitment has been made globally to reduce the scourge through early detection and vaccination. HPV vaccination (Cervarix, Gardasil, and Gardasil 9) has been made available to developing countries by the help of Global Alliance for Vaccination and Immunization, Nigeria inclusive.^[13] It has been approved by the United State Food and Drug Administration.^[14] However, the rate of utilization of the cardinal preventive measure remains low among Nigerians.^[15] Majority of the studies in Nigeria, have implicated lack of awareness, availability, cost and many more factors as the cause for low utilization of HPV vaccine.

Knowledge of cervical cancer is one of the significant predictors of readiness to accept HPV vaccine. In sub-Saharan African, there remains the low level of women knowledge on cervical cancer.^[16] This was supported by a study conducted among adolescents and young women in Turkey which documented limited awareness and knowledge of HPV in relation with cervical cancer and prevention of cervical cancer.^[17] In Nigeria, Ezenwa *et al.*^[18] as well as Ahmed *et al.*,^[19] reported adequate awareness but fair knowledge of cervical cancer among Nigerian mothers, this was collaborated by Wright *et al.*^[20]

Improving the knowledge about HPV and HPV vaccine will be an important way to increase vaccination rates among adolescents in Nigeria. However, few educational interventions have addressed these topics in Nigeria rather more emphasis has been on cervical cancer screening which is a secondary preventive measure.

Bartolini *et al.*^[21] discovered that sufficient information provided by credible sources may make parents accept HPV vaccine. In a study done among women in Hong Kong, education program on prevention of febrile neuropathy had a significant favorable effect on the intervention group.^[22] Chang *et al.*^[23] reported that in China effect of an educational intervention on HPV in knowledge and vaccine attitudes among urban employed women and female undergraduate increased HPV knowledge scores in the intervention group. Similarly, a similar study documented raised high demand for HPV vaccine among mothers in Anambra State in Nigeria through provision of health information.^[24]

Education and effective communication are crucial in achieving successful immunization programs.^[25] Parents, especially the mothers have a major role to play when making a crucial decision regarding their children. With the current global shift from curative medicine to preventive medicine, more effort is required in improving mother's knowledge about cervical cancer and HPV vaccination. Hence, it is essential to determine the effect of the nursing intervention on mothers' knowledge of cervical cancer and

acceptance of Human papillomavirus vaccination for their adolescent daughters in Abuja.

Methods

Design and approach

This was a quasi-experimental study that utilized two groups pre and post-test design. The study had an experimental and control group (CG).

Study setting

The study was conducted in two selected Area Councils (AC) Secretariats in Federal Capital Territory, Nigeria. The AC Secretariats were as follows: Bwari AC (experimental group [EG]) and Kwali AC (CG).

Study participants

The study participants were married civil servants women working at the selected AC Secretariat who fulfilled the inclusion criteria such as age above 18 years, mothers with at least a female child, with no previous history of cervical cancer and willingness to participate in the study. The sample size was derived for the study, using the standard formula for intervention studies.^[26] The aim was to achieve results at 95% of confidence interval, confer 80% power and the desired degree of accuracy of 0.05. The study sample size derived was 86 from each group with a total of 172 participants.

Tools and techniques

The major instrument used for data collection was a structured interview questions developed through literature review and expert review which was used to elicit information from each participant. The content validity of the instrument was determined using the items in the different sections of the questionnaire. The reliability of the instrument was determined using the split-half method. Reliability statistics for knowledge questions and mothers' acceptance of HPV vaccination was 0.98 and 0.82 respectively. All items assessing mothers' opinion about factors influencing acceptance of HPV vaccination reliability was assessed to be 0.83. The questionnaire was pre tested with 50 women between the ages of 27 and 56 years at Gwagwalada AC Secretariat Abuja, Nigeria.

The local government councils were categorized based on the geographical location. One AC was selected from the southern axis and northern axis (Federal Capital Territory FCT) respectively, by simple random sampling. The current study decided to choose the experimental and CG from two different ends (North axis and South axis) of the state to prevent cross-interference during and after the intervention periods. The, Bwari AC secretariat was chosen to be the EG while Kwali AC secretariat was the CG.

The instrument used for data collection consisted of six sections which are socio-demographic data, source of information on cervical cancer, knowledge of cervical cancer, mothers' experience on cervical cancer and Mothers' acceptance of HPV vaccination.

Data collection procedure

Data were collected with the aid of interviewer-administered questionnaire. The participants were required to correctly identify risk factors, symptoms and means of prevention by responding with "yes" "no" or "don't know" as appropriate.

Phase one (pre intervention activities)

The two research assistants recruited for this study were trained for 2 days on effective communication, the objective of the study and questionnaire administration, using training protocol developed by the researcher. The proficiency of the interviewers was verified through pre testing and the noticed gaps filled. The baseline data on knowledge of cervical cancer and acceptance of HPV vaccination were collected from each group.

Phase two (intervention activities)

Nursing intervention was through organized 2 days workshop on cervical cancer and HPV vaccination for the EG only. This involved the use of developed teaching module that covered topics on the burden, risk factors, symptoms, prevention of cervical cancer, HPV vaccination, safety and efficacy. Four hours lecture with 15 min tea break each day was adopted. Lecture-discussion method was through multiple health channels such as power point presentation, posters and flyers on cervical cancer. A comprehensive lecture was given on HPV vaccination, causes, prevention and clinical manifestation of cervical cancer, an incentive of free medical check-up was done for each participant checking of blood pressure, weighing, and sugar level. Teaching materials for the workshop was made available to the participants to be read at home.

Phase three (post intervention)

The EG were assessed immediately after the 2 days workshop to confirm that the teaching were well understood. The participants were required to answer the same set of questions used for the pre test. Three months after the intervention, a post intervention evaluation was conducted using the same interviewer-administered questionnaire for both experimental and CG respectively. The women who were part of the workshop were invited to participate in the post-intervention evaluation. However, after 3months evaluation was done for the CG and participants were also educated on cervical cancer and HPV vaccinations.

Ethical consideration

The study was approved by Federal Health Research Ethics committee FCT Authority Abuja. Protocol Approval Number: FHREC/2016/01/14/07-07-16. All eligible participants were duly informed about the procedure adopted by the study. Written and verbal informed consent was obtained from all participants.

Statistical analysis

The investigator used frequency and percentage distribution to show the overall findings. Seven participants were lost to follow-up, 4 and 3 from EG and CG, respectively. To evaluate the knowledge, appropriate answer Yes = 2, No = 1, I don't know = 3. Correct answer was scored 1 and wrong answer was 0 with total correct score of 31. The mean knowledge of cervical cancer were also calculated for each group. The Chi-square test and *t*-test was used to determine the association of factors with the findings. The statistical analysis was performed using SPSS Version 20, window developed by IBM, Armonk, New York, United State of America.

Results

Demographic characteristics of mothers

One hundred and forty-six participants were recruited in the study. Of these, 69 in EG and 77 in CG. Highest number of the respondents in EG 35 (50.7%) was aged between 35 and 44 years with mean age 38 ± 6.6 while CG recorded 36-45 years as modal class with mean 41 ± 8.2 . The modal levels of education who had Bachelor of Science were 16 (23%) and 18 (23%) in experimental group and CG respectively. The least of about 2 (3%) had primary school certificate in both groups. Almost 53 (77%) of the respondents were senior staff. Majority of participants were Christianity with 61 (88.4%) and 54 (70.1%) in EG and CG respectively. The income indicated that modal number were at GL 7 while the percentage 16 (23.2%) was in GL 15 and none in CG, about 25 (36%) had at two girls in EG and 36 (46.8%) in CG.

Awareness of mothers to cervical cancer

Among 69 participants in EG 51 (74%) of the respondents have heard about cervical cancer, 20 (29%) heard on television and 17 (25%) were aware through

Table 1: Respondents' awareness of cervical cancer

Variable	Response	Frequency (%)		df	χ^2	P	Remark
		EG (n=69)	CG (n=77)				
Awareness of cervical cancer	No	18 (26.1)	13 (16.9)	1	1.843	0.175	Not significant
	Yes	51 (73.9)	64 (83.1)				
Sources of information	Internet	5 (7.2)	7 (9.1)	6	14.26	0.024	Significant
	Television	20 (29.0)	38 (49.4)				
	Book/ journal	6 (8.7)	9 (11.7)				
	Nurses	17 (24.6)	6 (7.8)				
	Doctors	11 (15.9)	7 (9.1)				
	Chew	7 (10.1)	3 (3.9)				
	Others	3 (4.3)	4 (5.2)				
Ever attended workshop on cervical cancer	No	64 (92.8)	72 (93.5)	1	0.03	0.86	Not significant
	Yes	5 (7.2)	5 (6.5)				
If yes, how many times	One	3 (4.3)	4 (5.2)	2	0.51	0.61	Not significant
	Three	2 (2.9)	1 (1.3)				
	No response	64 (92.8)	72 (93.5)				
Organizer of the workshop	Church	1 (1.4)	1 (1.3)	2	0.02	0.99	Not significant
	NGO	2 (2.9)	2 (2.6)				
	No response	66 (95.7)	74 (96.1)				
Last workshop done	Years	2 (2.9)	3 (3.9)	2	0.09	0.76	Not significant
	Days	2 (2.9)	2 (2.6)				
	No response	65 (94.2)	72 (93.5)				
Duration of days of workshop	1	2 (2.9)	2 (3.9)	2	2.25	0.33	Not significant
	3	2 (2.9)	3 (2.6)				
	No response	65 (94.2)	72 (93.5)				

NGO: Non-Governmental Organization EG: Experimental group, CG: Control group

the nurses. About 5 (7.2%) had attended workshop on cervical cancer for maximum of 3 days which was organized by Non-governmental organization and churches. For the CG, 64 (83.1%) of the 77 respondents were aware of cervical cancer while majorly 38 (49.4%) heard through television [Table 1]. The respondents had similar characteristics as there were no significant differences in their awareness at baseline except for the respondents' sources of information (X^2 14.26, P

= 0.024). Though, their sources of information were significantly different but their awareness at baseline was similar (X^2 1.843, P = 0.175) in the two groups.

Table 2: Respondents' knowledge score indices

Stage	Mean±SD		t	P
	EG	CG		
Pre intervention (P ₁)	9.58±7.187	11.61±6.554	1.786	0.076
Immediate post intervention (P ₂)	21.45±6.214	-	-	-
3 months post intervention (P ₃)	18.45±6.258	10.65±6.893	6.031	0.001

SD: Standard deviation, EG: Experimental group, CG: Control group

Table 3: Respondents' human papillomavirus vaccination issues (n=69)

Variable	Response	Frequency, n (%)
Ever taken daughter for cervical cancer vaccination	No	68 (98.6)
	Yes	1 (1.4)
Number of daughters	One	1 (1.4)
	No response	68 (98.6)
Doses of vaccine given	Four	1 (1.4)
	No response	68 (98.6)
Reason for not being vaccinated	Lack of information	59 (85.5)
	Under – age	5 (7.2)
	Female child is above age of vaccination	3 (4.3)
	Vaccine is expensive	2 (2.9)
	Unaware of venue for vaccination	6 (8.7)
	Carelessness	2 (2.9)

Table 4: Acceptance of human papillomavirus vaccination in both groups

HPV vaccination decision	Frequency (%)					
	EG			CG		
	P1	P2	P3	P1	P3	
Unaccepted	18 (26.1)	1 (1.5)	4 (6.2)	13 (16.9)	29 (39.2)	
Accepted	51 (73.9)	66 (98.5)	61 (93.8)	64 (83.1)	45 (60.8)	
Total	69 (100.0)	67 (100.0)	65 (100.0)	77 (100.0)	74 (100.0)	

EG: Experimental group, CG: Control group

Table 5: Factors associated with acceptance of human papillomavirus vaccination

Variable	EG (n=69)			CG (n=77)		
	Yes	No	No response	Yes	No	No response
Adequate information regarding vaccine will enhance acceptance	51 (73.9)	10 (14.5)	8 (11.6)	60 (77.9)	15 (19.5)	2 (2.6)
Subsidized cost will increase acceptance	51 (73.9)	10 (14.5)	8 (11.6)	64 (83.1)	11 (14.3)	2 (2.6)
School based HPV vaccination will increase acceptance	48 (69.6)	13 (18.8)	8 (11.6)	61 (79.2)	13 (16.9)	3 (3.9)
Willingness to complete HPV vaccination doses for one's daughter	48 (69.6)	13 (18.8)	8 (11.6)	62 (80.5)	13 (18.8)	2 (2.6)

HPV: Human papillomavirus, EG: Experimental group, CG: Control group

Knowledge score indices of cervical cancer

The EG had a very drastic increase in knowledge from the pre intervention (P₁) stage to immediate post-intervention (P₂) with mean of 9.6 ± 7.2 increased to 21.5 ± 6.2. At the 3 months follow up (P₃), the knowledge mean score declined slightly to 18.5 ± 6.3. The knowledge score indices for the CG slightly decreased from 11.6 ± 6.6 at P₁, 10.7 ± 6.9 at P₃ [Table 2].

Respondents' human papillomavirus vaccination issues

Among 69 participants in the EG, only 1 (1.4%) of the respondents have taken their daughters for cervical cancer vaccination. Fifty-nine (85.5%) of the respondents said that lack of information deterred them to vaccinate their daughters while other reasons included are under age for vaccination, unaware of the venue of vaccination and cost of vaccine [Table 3].

Respondents' acceptance of human papillomavirus vaccination in both groups

At baseline, 51 (73.9%) and 64 (83.1%) of the mothers were ready to accept HPV vaccination in EG and CG, respectively. While at 3months evaluation 61 (93.8%) and 45 (60.8%) were ready to accept HPV vaccination for their adolescent daughters [Table 4].

Factors associated with acceptance of human papillomavirus vaccination

Fifty- one (74.0%) of mothers in EG and 60 (78.0%) of CG were ready to accept cervical cancer vaccine if adequate and sufficient information regarding the vaccine is given. Fifty-one (74%) of the mothers in experimental and 64 (83%) in CG were ready to accept cervical cancer vaccine if the price is subsidized. Forty-eight (70%) of mothers in experimental and 61 (79%) in CG prefer school based vaccination for their daughters. Forty-eight (70%) of the mothers in experimental and 62 (80%) in CG were ready to complete doses of HPV vaccination for their daughters [Table 5].

Table 6: Respondents' knowledge score test-statistics

Stage	EG (P ₁ mean)	CG (mean)	T	P	Remark
Preintervention (P ₁)	9.58±7.187	11.61±6.554	1.786	0.076	Not Significant
Immediate	21.45±6.214	-	-	-	
Postintervention (P ₂)					
3 months	18.45±6.258	10.65±6.893	6.031	0.001*	Significant
Postintervention (P ₃)					
P ₁ versus P ₃					
EG			6.671	0.0001*	Significant
CG			1.328	0.188	
P ₁ versus P ₂					
EG			10.189	0.0001*	Significant

EG: Experimental group, CG: Control group

Table 7: Crosstabulation of association between exposure to nursing intervention and acceptance of human papillomavirus vaccination in experimental group

Nursing intervention	Non acceptance	Acceptance	Total	df	χ ²	P	Remark
Exposure	6	59	65	1	16.485	0.0001	Significant
Non exposure	29	45	74				
Total	35	104	139				

Comparing the knowledge level between the groups

There is no significant difference in respondents' knowledge of cervical cancer in both groups at baseline (P₁) ($t = 1.79, P = 0.076$). However, at P₃, the knowledge score was significantly different between the two groups ($t = 6.03, P = 0.0001$). The analysis further shows that within EG knowledge score the mean of the knowledge score at pre intervention stage was significantly different from the mean of the knowledge score at both P₁ ($t = 6.67, P = 0.0001$) and P₃ ($t = 10.19, P = 0.0001$) [Table 6].

Determining the association between intervention and acceptance of human papillomavirus vaccination

The Chi-square test reveals that the exposure to nursing intervention was significantly associated with the mothers' acceptance of HPV vaccination ($\chi^2 = 16.49, P = 0.0001$) [Table 7].

Discussion

Respondents awareness of cervical cancer

Almost three-quarters of our respondents were aware of cervical cancer, with television being the commonest source of the information pre intervention in both groups. This was similar to findings of others that reported Television/Radio as main sources of information.^[15,18,27] The implication of this is that more media campaign on cervical cancer and HPV vaccination should be implemented through jingles, movies and role-play. These will regularly enlighten mothers

on cervical cancer and its prevention. This current study reported low level of information from health personnel. This contradicts the report of other studies that documented Hospital and health personnel as one of the main source of information of cervical cancer.^[19,28] Health personnel, especially nurses who relate with mothers often, should be prepared to always educate mothers on cervical cancer and HPV vaccination.

Knowledge of respondents on cervical cancer in experimental and control group

The level of awareness of cervical cancer in the current study does not translate to high knowledge and its link to HPV and HPV vaccination in both experimental and CG. Majority of mothers demonstrated low knowledge on the disease in experimental and CG, respectively. The above findings are inconsistent with the study conducted by Adamu, Abiola and Ibrahim.^[29] documented low knowledge of cervical cancer among women in Nigerian. However, post intervention assessment shows that intervention given by researcher significantly improved the mean knowledge scores of participants that took part in the 2 days workshop organized by the investigator. This value remain virtually the same in the CG, it could be assumed that the improvement in these variables was probably due to effect of nursing intervention given. It was noted that major areas where mothers do not have knowledge on cervical cancer were on the prevalence of cervical cancer, risk factors, signs/symptoms, and preventions. This was supported by Ahmed *et al.*^[19] that women in Zaria in Nigeria had poor knowledge on risk factors while knowledge of symptoms of cervical cancer was fair. This implies that, if mothers do not have in-depth understanding on the risk factors, to ensure preventive measures will be difficult.

Majority of women in both groups are not aware of HPV vaccination as a means of prevention of HPV infection. This was supported by Makwe and Anorlu^[30] who reported poor knowledge of HPV vaccination among Nigerian women. HPV vaccination remains a cardinal preventive measure against cervical cancer. However, there is low knowledge and utilization by the current study, only one respondent has utilized the vaccine for her daughter. This was in agreement to low utilization of HPV vaccination among Nigerians reported by Odetola and Ekpo.^[15] Similar study by Banura *et al.* reported low demand for HPV vaccine in sub-Saharan Africa^[31] Poor utilization of screening facilities and vaccination is not peculiar to cervical cancer as many cultural factors such as cultural beliefs, religious practices, poor infrastructure, and many more have been implicated as cause of under-utilization of health-care services in Nigeria^[32].

This was also similar to reports from developing countries that documented low utilization of cervical cancer

prevention.^[33] In addition, the respondents' poor knowledge of HPV vaccination at baseline may explain the poor level of utilization. Similarly, mothers in the current study have implicated inadequate accessibility to HPV vaccination and cost as the cause for low utilization of HPV vaccine.

Respondents' acceptance of human papillomavirus vaccination among mothers in both groups

Mothers' acceptance of HPV vaccination is generally good both at pre and post- intervention stage, even at pre intervention stage, mothers are willing to vaccinate their daughters despite they recorded low knowledge on cervical cancer and HPV vaccination. This is supported by^[34,35] who reported that most of the mothers in Nigeria showed high acceptability of HPV vaccine despite low awareness reported regarding this vaccine and this can be attributed to mothers attitude in accepting positive health actions that will promote and maintain their child's health.

The nursing intervention increases the mothers' awareness and knowledge about HPV vaccine which promotes their positive perception about the vaccine. This is correlated with the studies of Mark and Yin Ching, Umezulike *et al.*, and Ezeanolue *et al*^[22,24,36] The concept of prevention can be well understood if given by health personnel, like nurses. Therefore, increase in knowledge about HPV and HPV vaccine is an important way to increase vaccination rates among mothers of the adolescents in Nigeria.

Limitations

The study was conducted in only two selected AC Secretariat in Abuja out of six AC due the nature of the study, insufficient resources and time constraints. Randomized controlled study is the gold standard for investigating interventions. The nature of the study could not allow for full randomization and blinding. However, the respondents in the experiment and CG were purposively selected hence cluster-randomization into EG and CG were done. The sample size in the EG was not attained due to purposive selection of the participants. However, there were up to 90% of sample size that participated in the study in the EG and CG. There was enough post intervention respondents to ensure that the findings of the study were valid in both groups.

Conclusion

The study findings clearly show the significant impact of nursing intervention on the mothers' knowledge of cervical cancer and acceptance of HPV vaccination for their adolescent daughters. It is therefore recommended that nurse managers in all health institutions should ensure that nurses use every available opportunity in mothers'

clinic to educate on cervical cancer and HPV vaccination. Government should subsidize the price of HPV vaccination to make it affordable for the common man. Moreover, health policy makers should ensure the integration of this vaccine in the immunization schedule of the nation.

What this paper adds to existing knowledge

This study had added to the basis for formulation of sustained plan of action that will ensure regular health information regarding cervical cancer and HPV vaccination for mothers by nurses, especially during Gynaecology Clinic, Antenatal Clinic and Child welfare clinic. Moreover, Primary Care Nurses, Public Health Nurses and School Nurses should make it a duty to educate their client on HPV infection and prevention. The findings from this study also provide insight for guiding government, intergovernmental, and non governmental organization in doubling effort to improved women awareness on prevention of cervical cancer across the nation regardless the geographical location.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest

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