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Effect of Health Education Programme on Knowledge of Cervical Cancer Screening among Women of Child Bearing Age in Anambra State, Nigeria

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Authors' contributions

This work was carried out in collaboration among all authors. Author NNS designed the study, performed the statistical analysis, wrote the protocol and wrote the first draft of the manuscript. Authors NNS and OAI managed the analyses of the study. Author NNS managed the literature searches. All authors read and approved the final manuscript.

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ABSTRACT

Aims: This study aimed at finding out the effect of Health Education programme on knowledge of cervical cancer screening among women of child bearing age in Anambra State.
Study Design: The study adopted a quasi-experimental research design.
Place and Duration of Study: The study was conducted at Chukwuemeka Odumegwu Ojukwu University Teaching Hospital Awka and General Hospital Onitsha between June 2019 to September 2019.
Methodology: Using multi-stage (purposive) sampling technique, the sample size for this study consisted of one hundred and eighty four (184) women (134) subjects for experimental group and 50 subjects for control group) attending antenatal in public hospitals in Anambra State. The instrument contained five questions on demographic data of the respondents, questions on

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knowledge of cervical cancer and practice questions with four point response options. The reliability of the instrument was established by using Cronbach alpha for estimating the internal consistency of the instrument. The means and standard deviation was used to answer the research questions and inferential statistics (ANCOVA) was used to test the null hypotheses at 0.05 level of significance in the Statistical Package for Social Science (SPSS).

Results: The findings indicated health education programme was effective and significantly increased cervical cancer screening knowledge of women of child bearing age. On the basis of the findings, it was recommended that awareness campaigns and education programmes to enlighten the public about cervical cancer screening should be broad to encompass signs and symptoms, risk factors and modes of prevention of the disease.

Conclusion: Health education programme significantly increases the knowledge and screening practice. The knowledge transfer to the women was effective. According to the results, the trainings for cervical cancer and early diagnosis can be given to the health workers who are the role models for the women and societies within the framework of theoretical models tested, and the validity and reliabilities have been proven.

Keywords: Health education programme; knowledge; cervical cancer screening; women of child bearing age; education levels.

1. INTRODUCTION

Cervical cancer is the third most basic malignant growth influencing ladies worldwide and liable for an expected 265,000 deaths annually worldwide, 87% occurred in developing countries [1,2,3]. A lopsided number of these incidences (85%) and deaths (87%) occur among women living in low and middle income countries [4]. Current estimates in Nigeria demonstrate that consistently 9,922 ladies have cervical malignancy and 8,030 kick the bucket from the sickness. It is anticipated that 18,105 new cases will be analyzed by 2025 and an expected 14,705 will diebefore 2025 [5]. The high frequency and pervasiveness of cervical malignant growth in Nigeria is profoundly reminiscent of low level wellbeing instruction and medicinal services. For instance, a pilot concentrate in Jos, Nigeria detailed an expected yearly rate pace of cervical cancer growth in 77/1,000 ladies and mortality of 3,000-8,000. These assessments are a lot higher than those of the United States and Europe [6].

Cancer is a non-transferable sickness; it is a danger to the prosperity of women in developing and developed nations. Cancer growth is a sickness where the cells of a tissue experience uncontrolled and regularly fast expansion; it is frequently brought about by an uncontrolled division of anomalous cells in the body [7]. Three threatening properties of cancer incorporate (development and division fast as far as possible), attack (interruption on and decimation of nearby tissues) and in some cases metastasis (spread to different areas in the body through lymph or blood). These three harmful properties of cancer growth separate them from benevolent tumors which don't spread into, or attack close by tissues and don't develop back when evacuated.

Cervical cancer alludes to the harmful state of the cervix. Essentially, every woman can develop disease of the cervix. Higher paces of cervical malignancy have been found in those in danger of explicitly transmitted diseases like those with numerous sex accomplices, early age sex, nearness of other explicitly transmitted contaminations like Herpes simplex and Human Immune Deficiency Virus Infection [8]. Despite the fact that hazard factors regularly impact the advancement of malignant growth, most don't legitimately cause disease. A few people with a few hazard factors never develop malignant growth, while others with no realized hazard factors do. A few factors, for example, Human Papillomavirus (HPV) disease, Immune framework deficiency, Herpes, Smoking, Age, Socioeconomic elements, Oral contraceptives and introduction to diethylstilbestrol (DES) may raise a lady's danger of developing cervical cancer. Also, the way of life of early marriage with early sex will undoubtedly build the rate of cervical cancer growth. Awareness and familiarity gained from knowledge of cervical cancer situation therefore becomes imperative for women. Alosaimi [9] defined knowledge as recognition which can incorporate realities, data, portrayals, or aptitudes obtained through understanding or training. It can allude to the hypothetical or commonsense comprehension of a subject. It tends to be verifiable (similarly as

with handy aptitude or ability) or express (likewise with the hypothetical comprehension of a subject); it tends to be pretty much formal or in form of a deliberate education programmes.

Health education programmes could be effective for all levels of cervical cancer prevention which includes a wide range of activities — known as "interventions" — aimed at reducing risks or threats to health within primary, secondary and tertiary categories of prevention. Therefore, lack of knowledge about cervical cancer could have an impact on women's cervical cancer prevention practices [10,11]. Mbamara, Ikpeze, Okonkwo and Onyiaorah [5] carried out a study to describe the knowledge, attitudes, and practices of gynaecology clinic attendees in a tertiary level health care centre in Nigeria and found that there is a significant, association between the educational status and the knowledge of the cervical smear pap test. Mupepi, Sampselle and Johnson [12] examined Knowledge, Attitude and Demographic factors influencing cervical cancer screening. Their results showed that 91% participants had never had cervical screening. A study on the impact of health education intervention on knowledge and perception of cervical cancer and cervical screening practice among adult women in rural communities in Nigeria was also carried out by Abiodun, Olu-Abiodun, Sotinsa and Oluwole [13] in Nigeria, authors concluded the impact of health education, is effective in creating awareness for and improving the knowledge of adult women about cervical cancer and screening.

Other researchers has reported comparable results on relevance of knowledge of cervical cancer screening [14,15,16]. Despite the overwhelming evidence on the necessity of adequate knowledge cervical cancer among women, there is paucity of scientific information on specific effects of structured health education programme on knowledge of cervical cancer among women of child bearing age in Anambra state. Lack of knowledge about cervical cancer screening and prevention in this group might pose serious challenges on the uptake of cervical cancer screening when suitable. Therefore it is important that ill practices and gaps in knowledge are addressed early before the women reach suitable ages for screening. Hence for the cervical cancer screening and prevention strategies to be fully utilized, women of child bearing age in Anambra State need to be aware of the availability of the methods, to have knowledge of the disease.

The result of this study would create awareness, increase knowledge and bring positive attitudinal change towards cervical cancer in women and mothers of adolescent daughters in educating them regarding cervical cancer. Similarly, the findings of the study will assist the health educators exposing cervical cancer risk behaviours which must be avoided to reduce the risk of the scourge. Determining the respondents knowledge of cervical cancer risk behaviour by this study will guide health educators in effective formulation of strategies for acquiring, distribution and use of necessary training facilities, tools and equipment for effective prevention of cervical cancer.

1.1 Theoretical Framework

The study was guided by theory Health Belief Model (HBM) which provides examples on how the behaviour change process is believed to occur. The Health Belief Model (HBM) is a psychological model that attempts to explain and predict health behaviours. The Health Belief Model was initially developed in the 1950's by a social therapist in the US Public Health Service to clarify the boundless disappointment of individuals to take an interest in the projects to forestall and recognize infection from that point forward, the HBM has been embraced to investigate an assortment of long and transient wellbeing practices including sexual hazard practices and the transmission of HIV/AIDS. The HBM show that wellbeing practices are controlled by health convictions and availability to make a move. The HBM is most broadly utilized model of health conduct and has been applied in various settings, including utilization of precaution screening, acquiring inoculations, consistence with clinical regiments and reaction to ailment indications [17]. This model intends to clarify preventive health practices instead of practices in time of disease [18]. Significant health practices underlined by the Health Belief Model spotlight on preventive exposure of diseases at their asymptomatic stage.

1.2 Statement of the Problem

Cervical cancer remains the leading malignancy among women of childbearing, it causes pain, suffering, economic loses and death among many women in the world. In Nigerian, the incidence of cervical cancer is described as the leading cause of gynecological cancers in Nigeria. Cervical cancer has thus become a serious endemic problem which presents

multidimensional challenges to the population, health care professionals, governments, development support agencies and corporate economies. Though it is preventable, screening and preventive practices of women in the state is limited and little documentation is available. It affects younger women causing them to die when they are economically productive and very useful to their families. It is a public health scourge that presents a serious burden on the patient, family, community and therefore deserves more attention. The low level of information regarding prevention of cervical cancer by women seems to be affecting their knowledge of cervical cancer screening for early detection.

1.3 Research Questions

The following were the research questions that guided the study.

1. What is the pretest and posttest mean cervical cancer screening knowledge scores of women of child bearing age exposed to health education programme and those in the control group?
2. What is the pretest and posttest mean cervical cancer screening knowledge scores of women of child bearing age of different education levels exposed to health education programme and those in control group.

1.4 Hypotheses

Specifically the following null hypothesis will guide the study.

1. There is no significant difference in the mean cervical cancer screening knowledge score of women of child bearing age exposed to health education programme and those in control group.
2. There is no significant difference in the mean cervical cancer screening knowledge scores of women of child bearing age of different education levels exposed to health education programme and those in control group.

2. MATERIALS AND METHODS

2.1 Research Design

The study adopted a quasi-experimental research design specifically, it used pre-test post-test with control group. The design seeks to establish the cause and effect relationship between the variables of interest. It is a design where observations are made in the study group before and after intervention and subjects are assigned to groups without complete randomization. Quasi experimental design was used because random assignment of subjects was not possible. In addition, some researchers who conducted similar studies to examine the impact of Health Education programme on knowledge and Attitude at Risk behaviour of students also used quasi-experimental design [18]. Quasi experimental design was used because random assignment of subjects was not possible.

2.2 Area of the Study

The study area is Anambra state; Anambra is a state in southeastern Nigeria. The indigenous ethnic groups in Anambra state are the Igbo (98% of population) and a small population of Igala (2% of the population), who live mainly in the north-western part of the state.

2.3 Population of the Study

The population for the study consisted of all women of child bearing who registered for antenatal in public hospitals in Anambra State within the period of the study. There are two (2) tertiary hospitals and thirty three (33) functional general Hospitals in Anambra State as shown in Appendix. This category of women was chosen because they are within the child bearing age and this vulnerable to cancer of the cervix. It is also assumed that their lifestyle will have great influence on their health.

2.4 Sample and Sampling Techniques

The sample size for this study consisted of one hundred and eighty four women including 134 subjects for experimental group and 50 subjects for control group attending antenatal in public hospitals in Anambra State. The Unequal number of subjects in the experimental and control groups was due to number of pregnant women who registered and attended antenatal clinics regularly in the selected hospitals during the period of study and who satisfied the inclusion criteria. The control group has less number of subjects that are between 28 and 32 weeks gestation period. Multi stage sampling technique was used for the study. Simple random sampling technique was used to select

two senatorial zones out of the three senatorial zones in Anambra State. Purposive sampling technique was used to select all public hospitals because they are homogenous in characteristics.

Thereafter, a simple random sampling technique of fish bowl without replacement was used to select two public hospitals in each of the selected zones. Simple random sampling technique was used to place the two hospitals selected in each senatorial zone experimental and control group. Simple random sampling was used to select antenatal days. The pregnant women who registered and attended antenatal clinics regularly in the four selected hospitals during the period of study and who satisfied the inclusion criteria participated in the study. The inclusion criteria were: the subject must be confirmed pregnant, duly registered at antenatal clinic. Participants that are not between 28 and 32 weeks gestation were excluded.

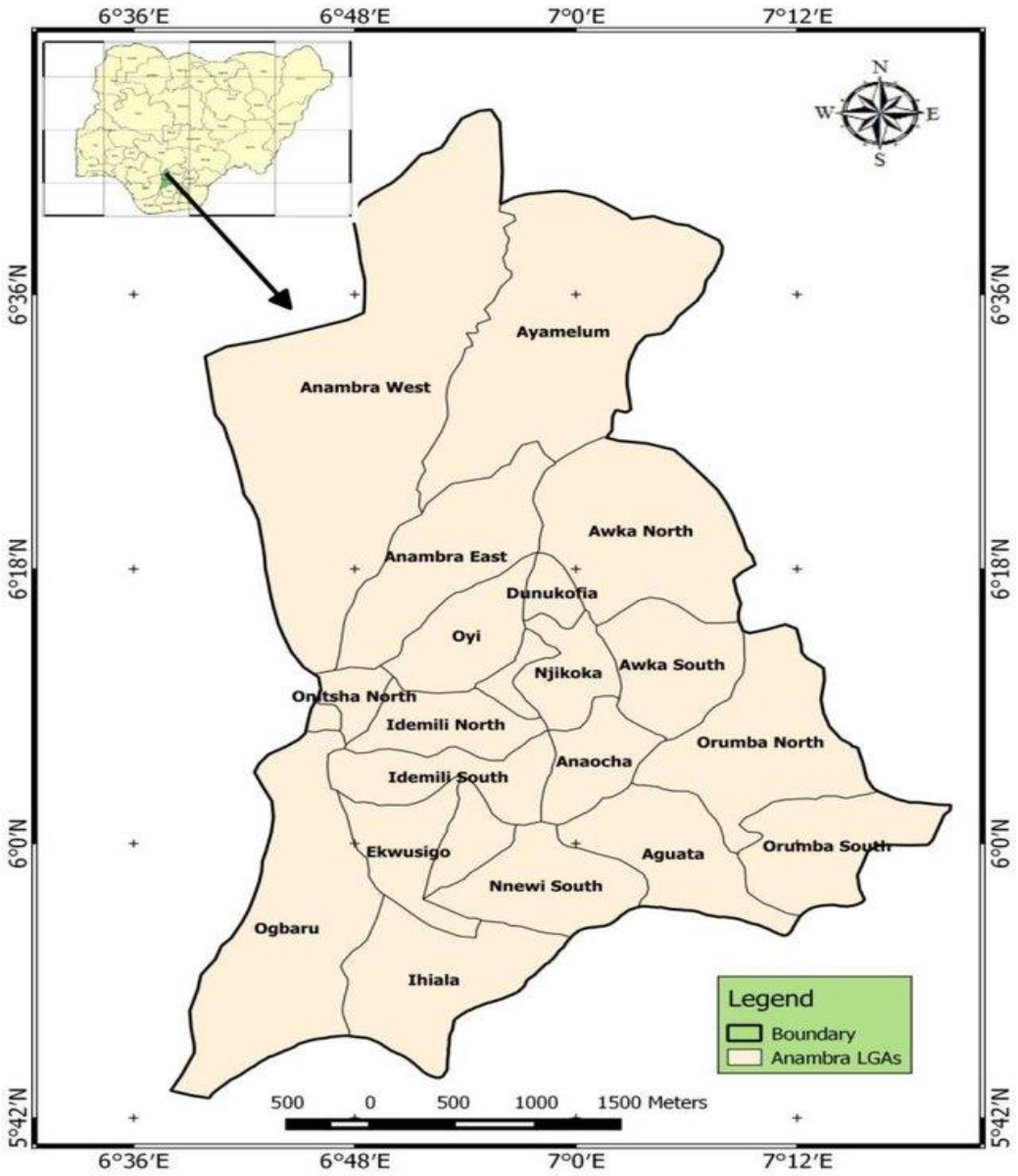

Fig. 1. Map of Anambra State
Source: Ezenwaji, Nzoiwu and Umeogu [19]

2.5 Instrument for Data Collection

The instrument used for data collection was cervical cancer knowledge and practice test questionnaire (KNOCERC) the instrument was self developed by the researcher following review of related literature. The instrument is in three sections (A, B and C). Section 'A' contained five questions on demographic data of the respondents (i.e. Age, level of education ethnicity parity level and occupation) section 'B' contained twenty four questions on knowledge of cervical cancer and section 'C' on the other hand consisted (12) practice questions with four point response options of Very Often (VO=4 points), Often (O=3 points), Rarely (R=2 points) and Never (VO=1 point).

2.6 Reliability of the Instrument

To ensure the consistency of the instruments used for data collection, the reliability co-efficient of the instrument was determined by administering it to 20 pregnant women attending antenatal clinics in University of Nigeria Teaching Hospital ItukuOzalla Enugu State who will not form part of the study sample. This was done with the assumption that the hospital and subjects used in the field are similar and comparable with those that will be used in the final study. The estimation of the reliability co-efficient of the instrument was obtained from the responses of the women using Kuder Richardson Kr.20 which has the co-efficient of 0.7. Hence the instrument was considered reliable.

2.7 Method of Data Collection

A letter of introduction was collected from the Head of Department of Human Kinetics and Health Education Nnamdi Azikiwe University Awka. This letter was presented to the medical Director of Chukwuemeka Odumegwu Ojukwu University Teaching Hospital Awka and General Hospital Onitsha. The researcher held conferences with the six research assistants in the experimental and control hospital on procedure of the programme and time on different days. Pre-test was administered first and collected followed by the Health Education Programme. The post-test was given after the completion of the programme and questionnaires were collected. The illiterate respondents were asked to complete the questionnaire by verbally responding to questions in the presence of the researcher / research assistants. After collecting the pre-test data, women of child bearing age who attends antenatal care in the hospitals were exposed to six sessions (two sessions each week) of health teaching on cervical cancer. The two sessions held on Mondays and Tuesdays which are the antenatal days chosen by the researcher for Chukwuemeka Odumegwu Ojukwu University Teaching Hospital while that of General Hospital Onitsha held on Wednesdays. Each group of child bearings women was visited every week to continue with the exercise which lasted for one hour per day. Altogether the lesson lasted for a total period of six weeks.

2.8 Method of Data Analysis

The data generated were analyzed using mean and standard deviation which was used to answer the research questions and inferential statistics (ANCOVA) was used to test the null hypotheses at 0.05 level of significance in the Statistical Package for Social Science (SPSS vs-22.0). The raw data was entered into the SPSS sheet and the variables well labelled. Analysis was done based on the research objectives.

3. RESULTS AND DISCUSSION

3.1 Research Question One

What is the pretest and posttest mean cervical cancer screening knowledge scores of women of child bearing age exposed to health education programme and those in the control group?

Table 1. Pretest and posttest mean cervical cancer screening knowledge scores and standard deviation of women of child bearing age exposed to health education programme and those in control group

Group	Pretest			Posttest			Mean gain score
	N	Mean	SD	N	Mean	SD	
Health Education Programme Group	134	13.94	3.17	134	19.72	2.59	5.78
Control Group	50	13.48	4.20	50	14.80	4.29	1.32

As displayed in Table 1, pretest and posttest mean cervical cancer screening knowledge scores of women of child bearing age exposed to health education programme were 13.94 and 19.12 respectively while that of women in the control group were 13.48 and 14.80 respectively. This shows a mean gain score of 5.78 for those exposed to health education and 1.32 for those in control group. This shows health education programme was effective in improving cervical cancer screening knowledge of women of child bearing age.

Research question one sought to find out the mean cervical cancer screening knowledge scores of women of child bearing age exposed to health education programme. The study found a mean gain score of 5.78 for those exposed to health education and 1.32 for those in control group. This shows health education programme was effective in improving cervical cancer screening knowledge of women of child bearing age. This view has previously been promulgated by Ebu, Amissah-Essel, Asiedu, Akaba &Pereko [20] who upheld that health education interventions are critical in improving knowledge and perceptions, and increasing self-efficacy of women about cervical cancer and screening. Similar opinion was held by Limmer, LoBiondo-Wood and Dains [21]; authors maintained that health education may enable women to increase their intention to screen. Evidence from a systematic review of studies conducted in developed settings strongly supports the use of health education programmes in increasing cervical cancer screening utilization [6].

3.2 Research Question Two

What is the pretest and posttest mean cervical cancer screening knowledge scores of women of child bearing age of different education levels exposed to health education programme and those in control group.

The results in Table 2 shows that based on educational levels of women of child bearing age, those with primary education had pretest and posttest mean cervical cancer screening knowledge scores of 10.79 and 14.71 with a 3.92 mean gain score. On the other hand, those that had secondary education had a pretest and posttest mean cervical cancer screening knowledge scores of 13.66 and 17.06 with a mean gain score of 3.40 while those that had tertiary education had 14.31 and 19.67 as pretest and posttest mean scores and a mean gain score of 5.36, indicating that those with highest educational level had higher cervical cancer screening knowledge compared to those with the lower levels of education [22].

In terms of treatment groups, women of child bearing of different education levels exposed to health education programme had higher mean cervical cancer knowledge score than those in control group with equivalent levels of education as shown by the mean gain scores of 6.25, 5.42 and 5.87 for those that had primary, secondary and tertiary levels respectively as against mean gain scores of 0.84, 1.26 and 1.70 for those with equivalent education levels. This shows that women of different educational levels benefitted from the health education programme. However, it would seem that women of child bearing age with primary education exposed to health education programme benefitted more than those with higher education levels [23].

Research question two dealt with mean cervical cancer screening knowledge scores of women of child bearing age of different education levels exposed to health education programme and those in control group. The study shows that those with highest educational level had higher cervical cancer screening knowledge compared to those with the lower levels of education. Gatumo, Gacheri, Sayed and Scheibe [24] in a similar study upheld that women's cervical cancer screening knowledge and attitudes are correlates of their educational level. Previous studies found a lower cervical cancer screening acceptance rate among poorly educated parents [25]. Nevertheless, the cervical cancer screening knowledge needs to be turned into actual cervical cancer screening [26].

3.3 Hypothesis One

There is no significant difference in the mean cervical cancer screening knowledge score of women of child bearing age exposed to health education programme and those in control group.

The data in Table 3 shows that there was a significant difference in mean cervical cancer knowledge scores of women of child bearing age exposed to health education programme and those in control group, $F(1,181) = 101.351$, $P<0.05$. Thus, health education programme significantly increased the cervical cancer knowledge of women of child bearing age.

Table 2. Pretest and posttest mean cervical cancer screening knowledge scores and standard deviation of women of child bearing age of different educational levels exposed to health education programme and those in control group

Educational levels	Pre test			Post test			Mean gain score
	N	Mean	SD	N	Mean	SD	
Health education programme group:							
Primary	8	10.75	2.87	8	17.00	4.78	6.25
Secondary	33	13.70	2.79	33	19.12	2.09	5.42
Tertiary	93	14.30	3.19	93	20.17	2.34	5.87
Control Group:							
Primary	6	10.83	5.19	6	11.67	5.24	0.84
Secondary	31	13.61	4.10	31	14.87	3.96	1.26
Tertiary	13	14.38	3.75	13	16.08	4.19	1.70
Total:							
Primary	14	10.79	3.85	14	14.71	5.51	3.92
Secondary	64	13.66	3.46	64	17.06	3.78	3.40
Tertiary	106	14.31	3.25	106	19.67	2.94	5.36

Table 3. Summary of analysis of covariance of child bearing mothers' mean cervical cancer knowledge scores by treatment groups

Source of variation	Type III sum of squares	df	Mean square	F	*P*-value	Decision
Corrected Model	1216.817	2	608.408	75.489	.000	
Intercept	1541.216	1	1541.216	191.228	.000	
Pre test Knowledge Scores	333.997	1	333.997	41.441	.000	S
Groups	816.845	1	816.845	101.351	.000	S
Error	1458.786	181	8.060			
Total	64875.000	184				
Corrected Total	2675.603	183				

The data in Table 3 shows that health education programme significantly increased the cervical cancer knowledge of women of child bearing age. This outcome is in line with the findings of Abiodun, Olu-Abiodun, Sotunsa and Oluwole [13] who found multiple media health education effective in improving the awareness, knowledge and perception of adult women about cervical cancer and screening. Authors suggest that creation of awareness is very crucial knowledge component of cervical cancer prevention programme. Some published studies pointed out that those women who had a general lack of knowledge about cervical cancer had a low level of cervical cancer screening uptake [22,23].

3.4 Hypothesis Two

There is no significant difference in the mean cervical cancer screening knowledge scores of women of child bearing age of different education levels exposed to health education programme and those in control group.

The results presented in Table 4 shows that there was a significant difference in mean cervical cancer knowledge scores of women of child bearing age of different educational levels, $F(2,177) = 4.388$, $P<0.05$. The null hypothesis was therefore rejected. Furthermore, there was no significant interaction between treatment and educational levels on the women's cervical cancer knowledge, $F(2,177) = 2.157$, $P>0.05$. The plots of means of cervical cancer knowledge scores of women of child bearing by treatment groups and different educational levels is displayed in Fig. 2 shows no significant interaction effect. However, to ascertain which group was significantly different from the other, simple contrast test was conducted and displayed in Table 4. The result shows that women of child bearing age with secondary education and those with tertiary education were significantly higher than those with primary education in cervical cancer knowledge but those with tertiary education were not significantly higher than those with secondary education in cervical cancer knowledge.

Table 4. Summary of analysis of covariance of child bearing mothers' mean cervical cancer knowledge scores by treatment groups and educational levels

Source of variation	Type III sum of squares	df	Mean square	F	*P*-value	Decision
Corrected Model	1293.878	6	215.646	27.624	.000	
Intercept	1551.530	1	1551.530	198.752	.000	
Pre test Knowledge Scores	240.778	1	240.778	30.844	.000	
Groups	425.165	1	425.165	54.464	.000	S
Education Levels	68.504	2	34.252	4.388	.014	S
Groups * Education Levels	4.314	2	2.157	.276	.759	NS
Error	1381.725	177	7.806			
Total	64875.000	184				
Corrected Total	2675.603	183				

Table 5. Simple contrast for main effect of education levels on mean cervical cancer knowledge scores of women of child bearing age

Educational levels		Contrast estimate	P-value	Decision
Secondary vs. Primary	(17.051 -15.369)	1.682	.049	S
Tertiary vs. Primary	(17.944 -15.369)	2.575	.004	S
Secondary vs. Tertiary	(17.051 -17.944)	-.893	.102	NS

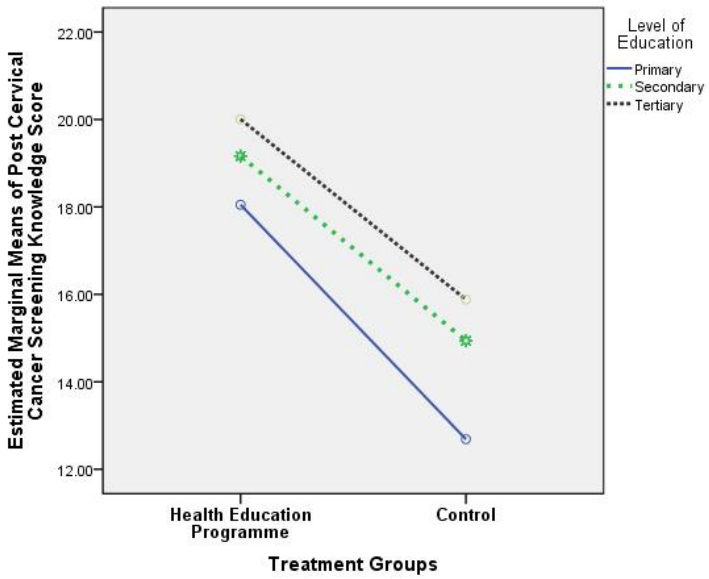

Fig. 2. Mean plots of cervical knowledge scores of women of child bearing age by treatment groups and educational levels showing no significant interaction effect

The plot in Fig. 2 shows that women of all levels of education had increased knowledge of cervical cancer screening knowledge. The simple contrast test conducted and displayed in Table 5 shows that women of child bearing age with secondary education and those with tertiary education were significantly higher (0.102) than those with primary education in cervical cancer knowledge but those with tertiary education were not significantly higher than those with secondary education in cervical cancer knowledge. The likely reason for this could be because women of child bearing age with tertiary education do not perceive themselves to be susceptible to cancer so the lesser the likelihood of commitment to cervical cancer screening knowledge acquisition [27]. Education is an important component of outreach for cervical cancer screening advocacy.

It is fundamental to the knowledge base of those who either suffer from such diseases or treat them, and provides the foundation for behaviour. Therefore cervical cancer screening knowledge that improves awareness of health risks is basic to disease cervical cancer prevention and health promotion.

4. IMPLICATION OF FINDINGS

The findings of this study have a number of implications for education. The results of this study provide facts as regards effect of Health Education programme on knowledge and practice of cervical cancer screening among women. The study will help will assist the health educators in improving cancer education and knowledge in primary, secondary and tertiary health institutions. Determining the level of Cervical Cancer knowledge as identified by this study will guide health administrators in updating the cervical cancer screening uptake among women of child bearing age.

5. RECOMMENDATIONS

1. A similar study can be conducted in larger group of women with longer period of health education intervention for more reliability and effectiveness.
2. Studies to explore the disparity between high knowledge and low uptake should be conducted. For the disparity, a longitudinal cohort would be recommended to explore the factors better rather than a cross-sectional survey.

6. CONCLUSION

The effect of Health Education programme on knowledge and practice of cervical cancer screening among women of child bearing age in Anambra State has been assessed. The study findings revealed that there was a statistically significant association of educational level with demographic variables; therefore woman can gain adequate knowledge on control of risk factors of cervical cancer. Mass knowledge campaigns and screening programme may be initiated as per the guidelines laid down by professional health educators to reduce the magnitude of the problem. Health education programme significantly increases the knowledge and screening practice. The knowledge transfer to the women was effective. According to the results, the trainings for cervical cancer and early diagnosis can be given to the health workers who are the role models for the women and societies within the framework of theoretical models tested, and the validity and reliabilities have been proven. Health workers can share the information about cervical cancer with patient to create knowledge during antenatal and post natal consultations. The results of this study provide practitioners (eg. practice nurses or public health nurses) information on how to develop an effective health education training programme for women of child bearing age, their training group and community.

CONSENT AND ETHICAL APPROVAL

All authors hereby declare that all experiments have been examined and approved by the appropriate ethics committee and have therefore been performed in accordance with the ethical standards laid down in the 1964 Declaration of Helsinki. Informed consent was also obtained from all individual participants involved in the study.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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