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Effect of Educational Intervention on Extent of Utilization of Cervical Cancer Screening among Women in two Selected LGAs of Ebonyi state, Nigeria

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ABSTRACT

Globally, cervical cancer is the fourth most frequent malignancy in women, with an estimated 604,000 new cases and 342,000 deaths in 2020. This high incidence is as a result of poor knowledge and attitude, with resultant poor uptake of the screening. This study investigated the effect of educational intervention on the extent of utilization of cervical cancer screening among women in selected LGAs in Ebonyi State, Nigeria. A Quasi-experimental research design was used, and data were collected using extent of utilization of CCS and researcher developed questionnaires in pre and post phases of the study. This study was conducted between March, 2025 to August, 2025. A sample size of 184 participants were selected through a multi-stage sampling technique. It was an intervention study that used both control (Abakaliki LGA) and intervention (Ikwo LGA) groups. Supportive education nursing intervention package (SENIP) was provided to the 92 participants in the intervention group only, for two weeks. Data were coded, cleansed and analyzed using IBM SPSS version 25 software. The hypothesis was tested at p-value<0.05. The result showed that only 14 (15.2%) participants had ever gone for CCS at pre and post-test respectively in the control group. In the intervention group, it revealed that prior to the educational intervention only 10 (10.9%) participants had ever gone for CCS, but after the educational intervention the number increased to 68 (73.9%). Hence, the summary statistics for the intervention groupshowed that there was a significant improvement in the extent of utilization of CCS prior to intervention (M= 0.1087, SD= 0.3113) and after intervention (M= 0.739, SD= 0.439) at p<0.05. This means that the assessed extent of utilization of CCS by participants in the intervention group improved significantly due to the supportive education intervention program. The researcher concluded that there was statistically significant effect of Nurse-led educational intervention on the extent of utilization of CCS. This shows that the educational intervention had a significant positive effect on participants' extent of utilization of CCS after the program.

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Key Words

Cervical cancer screening, women's experiences, educational intervention, phenomenology, nigeria / ebonyi state

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INTRODUCTION

Globally, cervical cancer (CC) is the fourth most prevalent cancer and the fourth leading cause of cancer-related mortalities in women, accounting for 604,000 new cancer cases and 342,000 mortalities worldwide in 2020[26].Cervical cancer screening saves lives. Over the past 30 years in the United States, the number of cases of cervical cancer and deaths has decreased by one half. This is mainly the result of women getting regular cervical cancer screening, because it is an important part of women's health care.Women generally do not participate in the screening program, and this low participation rate is more significant in the rural areas[19]. Research also, suggests that women's knowledge of CC and acceptability of the screening programs are low in urban and rural areas[15,23]. The major hindrances to participation in the screening programs are factors such as poor knowledge about cervical cancer, socio-cultural factors, cost of screening, lack of accessibility to health facilities and bad government policies[19,17]. Other factors that hinder uptake of CCS are poor attitudes towards the disease, feeling ashamed to expose the private part, preference for female doctors, embarrassment when seeking for cancer care, stigma following negative (abnormal) result, fear of the procedure and outcome of the test[4,12]. Common barriers to performing the Pap test were embarrassment, fear of the screening method or the test result, living in remote or rural areas, and limited health resources/infrastructure[6,21]. Considering the problems caused by CC, it is essential to know the factors affecting the use of CCS services. Cervical cancer is a significant public health problem in Nigeria, ranking as the second most frequent cancer among women and the second most frequent cause of cancer deaths in women aged [15-44] due to lack of knowledge concerning cervical cancer screening, poverty and illiteracy[33]. Cultural norms and beliefs, such as those requiring partner consent for healthcare decisions, can hinder women's participation in screeningin addition to poor attitude towards CCS and unavailability of screening centers. Some women may have misconceptions or fears about screening procedures or the possibility of a positive diagnosis. All these lead to poor uptake of CCS[31,35]. Over the years, awareness and CCS services have remained poor in developing countries. Lack of knowledge and poor attitude towards the disease and its risk factors can affect screening practice and the development of preventive behaviour for cervical cancer[16,31]. A small percentage of women in Nigeria have undergone cervical cancer screening, which may be the reason while Nigeria recorded 12,000 new cases and 8,000 deaths from cervical cancer[32].In recent times, statistics have shown that in Nigeria, cervical cancer accounts for 15% of female cancers as compared to just about 3.6% in the developed countries [8]. In spite of this, less than 0.1% of Nigeria women have ever had cervical cancer screening in their life time, and less than 1% are aware of the existence of this deadly cancer [18].

In Ebonyi State, cervical cancer screening uptake is relatively low, with studies showing that while a significant portion of women are aware of cervical cancer and its screening , only a small percentage have actually undergone screening . Common barriers to cervical cancer screening include not knowing the centers where such services are obtainable, unnecessary fear of discovering cancer, cost of screening, socio-cultural factors, poor knowledge and attitude towards cervical cancer screening[1]. Also, cervical cancer screening faces challenges in Ebonyi state despite being a preventable disease and a majo r cause of cancer deaths , with studies showing low awareness of CCS and uptake, but increased willingness to be screened. Also the study showed that while awareness of cervical cancer is relatively high, the utilization of screening services remains low [1].Due to the increasing rate of this disease, the World Health Organization announced a call to eliminate CC through vaccination and screening worldwide, which measures an incidence rate of less than 4 per 100,000 women annually [24]. CC elimination in low- and middle-income countries take significantly longer than high-income countries. It is predicted that high HPV vaccination coverage of girls can lead to cervical cancer elimination in most low- and middle-income countries by the end of the century[9]. Despite series of efforts made by health workers, government nationally and internationally to reduce cervical cancer morbidity and mortality rates, there has been little or no success as the problem still persist[7].Screening test allows for the early detection of cervical cancer, and successful treatment[2,17]. The Center for Disease Control (CDC) recommended the Pap test (Pap smear) which detects precancerous lesions, and the HPV test which identifies the virus implicated in causing cervical cellular change[10, 11]. Women should be screened for cervical cancer every 5-10 years starting at age 30. Women living with HIV should be screened every 3 years starting at age 25[30]. The global strategy encourages a minimum of two lifetime screens with a high-performance HPV test by age 35 and again by age 45 years. Pre-cancers rarely cause symptoms, which is why regular cervical cancer screening is important, even if the client has been vaccinated against HPV[26]. Supportive education for cervical cancer screening is a formal programmed framework which aimsto help detect precancerous changes and empower women with knowledge, positive attitude and resources to make informed

decisions about their health, promoting early detection and prevention through appropriate and accessible information[20]. The goal is to equip women with the knowledge and skills to actively participate in their healthcare promotion, rather than passively receiving information. Education enables women to understand the benefits of cervical cancer screening, the screening process, and vital information about where to access screening services and potential risks and benefits of different screening methods[13,34].

Aim of the Study: This study assessed the effect of educational intervention on extent of utilization of cervical cancer screening among women in two selected LGAs of Ebonyi State, Nigeria.

Study Objectives:
- To determine the extent of utilization of cervical cancer screening (CCS) among women in the two selected local government areas of Ebonyi State, Nigeria.
- To determine the factors thathinder the utilization of CCS among these women.
- To determine the effect of nurse-led supportive education intervention on the extent of utilization of CCS.

Hypothesis: Nurse-led supportive education has no statistically significant effect on the extent of utilization of CCS.

MATERIALS AND METHODS

Study Design: The study adopted quasi- experimental design of two study groups, the intervention group (Ikwo LGA) and the control group (Abakaliki LGA) as it gave room for assessing the knowledge gap.The intervention group received a detailed nurse-led supportive education, while the control group did not receive any, but after post-intervention data collection, the control group received series of nurse-led supportive education intervention which enabled them benefit from the essence of the study.The two groups were tested before and after the intervention. This study was conducted between March 2025 and August 2025. The questionnaire was administered twice in pre and post test phases.

Participants: The respondents in this study were women from the two selected Local Government Areas of Ebonyi State, Nigeria. They were total of 184 women who were used as the control and intervention groups.

Inclusion Criteria: The following criteria formed the basis for inclusion in this study:
- Women aged 20-65 years.
- Women who are at risk for cervical cancer, but have not had a recent screening.
- Women residing in the study area (Abakaliki and Ikwo).

Exclusion Criteria:
- Women who have had recent cervical cancer screening within the recommended timeframe i.e 6months to 1 year before the study.
- Women who have been diagnosed with cervical cancer.
- Women who are currently pregnant.
- History of total hysterectomy or surgical removal of the cervix.
- Women with severe medical or psychiatric conditions that may interfere with their ability to participate in the study.

Instruments for Data Collection:
Phase 1: Pre intervention: Data for this study were collected using a partly adopted and developed questionnaire by the researcher, guided by intensive literature review. The adopted one was from the International Agency for Research in Cancer (IARC); a handbook on cervical cancer screening by[5]. It is a standardized instrument (reliable and valid specific instrument) for measuring extent of utilization and factors hindering the uptake of cervical cancer screening in different settings. To suit the respondents' socio-demographic class, the researcher constructed the questionnaire using simple English that was understandable to the respondents. The questionnaire consists of 3 sections. Section A comprised of the respondents' socio-demographic data. Section B ascertained extent of utilization of CCS and factors that hinder the utilization of CCS. The instrument was first administered to participants in both intervention and control groups to obtain baseline data for comparison before administration of intervention package.

Sample Size: The sample size of 184 respondents was drawn from a total population of192, 279 respondents using the Cochran's formula.

$$n = (z^2 * p * (1-p)) / e^2$$

where
n = sample size,
z = z-score corresponding to the chosen confidence level, 95% = 1.96
p = estimated population proportion 0.14

e = margin of error, 0.05

$$n = \frac{(1.96^2 \times 0.14 \times (1-0.14)}{0.05^2}$$
$$= \frac{1.96^2 \times 0.14 \times 0.86}{0.05 \times 0.05}$$
$$= \frac{3.84 \times 0.1204}{0.0025}$$
$$n = 184$$

Sampling Technique: A multi-stage sampling technique was adopted in order to recruit the already determined sample size. The selection was conducted in three stages:

First Stage: The first stage involved simple random selection of 105 participants at the strata level drawn from 3 selected wards (Wards 1, 2 and 3) in each of the two selected local government areas (Ikwo and Abakaliki) for the study.

Second Stage: The second stage involved using stratified sampling technique to divide participants into mutually exclusive sub-groups based on specific characteristics which include age, marital status, occupation, educational qualification and socio-economic status as demonstrated in the strata table seen in appendix. From this exercise, one of the local governments was used as the intervention group, and the other as the control group through balloting.

Third Stage: This stage involved the recruitment of participants into the study using purposive sampling technique with the inclusion criteria set for the study. Ninety-two participants were selected from the three selected wards in each of the two selected Local Government Areas as the control and intervention groups respectively.

Data Quality Management: The validity of this study was constructed and tested using a face content validity. The first draft was provided to the two oncology nurses from NOFIC and two nurses with Ph.D Degree in Maternal and Child Health Nursing to check the readability, simplicity, relevance and significance of the content. Their comments were used to revise the questionnaire.

Before the main data collection phase, the questionnaire was piloted with 30 participants older than 18 years of age, and their feedback was used to improve the readability and organization of the content. These respondents were selected from four different areas. Their comments were used to revise the initial draft and then these respondents were excluded from the main data collection phase. Its reliability was approved, based on a test re-test questionnaire which was administered to 30 women (16.3% of the sample size). This involved 15 women from two wards in each of the two selected Local Government Areas. The questionnaire was re-administered to same group of participants after two weeks interval. The scores at the two-time points were then correlated. The correlation coefficient of 0.86 was obtained. Therefore, the instrument was statistically reliable.

Procedure for Data Collection:

Pre-study Meeting: The researcher visited the respective local government areas and, ward women leaders for consent. This provided opportunity of making arrangement on how women from various wards/villages would gather for data collection and intervention. The date for baseline data (pre-test) collection was agreed by the researcher, the assistants and women leaders. Intervention was followed few days after and was conducted within 4 weeks in different sessions. Post-test was conducted 3 months after the intervention.

Recruitment of Study Participants: Participants from the three wards of each Local government area who met the inclusion criteria, and gave their consent were recruited into the study using purposive sampling.

The Intervention was done in 3 Stages:

- Pre-test
- Intervention – Nurse-led Supportive Education
- Post- test

Stage 1: This involves the pre-intervention (pre-test) phase, which involved the collection of cross-sectional baseline information using interviewer administered questionnaires consisting of structured, close-ended items. The study instrument was divided into sections comprising of socio-demographic information, extent of utilization and factors hindering utilization of CCS, which were administered by trained female interviewers to both the intervention and control groups.

Stage 2: This is the intervention phase. It involved the provision of health education on cervical cancer screening for the intervention group only.

Information, Education and Communication (IEC) materials were produced by the researcher through the supportive-education nursing intervention package (SENIP). Two sessions were held four weeks apart to all participants in the intervention group. A communication network using mobile telephone was established with all the participants to ensure easy communication. Incentives were also given to participants in form of airtime for their mobile phone for easy contact with the researcher. Transport fair was as well given to some participants that did not reside close to the study center. There was light refreshment after each session.

Stage 3: A post-intervention (post-test) study was carried out 3 months after the intervention to provide sufficient time for a leveling effect. The same instrument used for data collection pre-intervention was also used at post-intervention for both groups. After post-intervention data collection, the control group was also given a series of health education intervention in order to benefit from the essence of the study.

Statistical Analysis: Data were coded and analyzed using statistical package for social sciences (IBM SPSS) Version 25 software to carry out all the statistical analysis. The socio-demographic characteristics of the respondents were analyzed using percentages and frequencies. The results of effects of SENIP on extent of utilization of CCS were presented with frequency, percentage, mean and standard deviation. The results of the responses of the intervention and control groups were compared using paired t-test statistics. Student t-test was also used to test the hypothesis which measured the effect of SENIP on extent of utilization of CCS using three (3) months post-test in all tests. Hypothesis was tested at P-value of 0.05.

RESULTS AND DISCUSSIONS

Socio-demographic Characteristics of Participants in both Control and Intervention Groups for the Study: The socio-demographic characteristics of the study participants in both the intervention and control groups were presented in table 1. For the control group, the mean age of the 92 participants was 42.16±9.90 years. Majority 80 (87%) were married. The highest proportion 40 (43.4%) had primary education as their highest educational qualification, while majority 42 (45.7%) earned a monthly income of less than N50,000. Similarly, participants in the intervention group had a mean age of 38.78±10.62 years; more than half 83 (90.2%) were married and majority 44 (47.8%) had no formal education, while 49 (48.9%) of the women earned a monthly income of less than N50,000.

Extent of Utilization of CCS amongst Participants in the Two Groups Before and After Intervention: Table 2 presents the extent of utilization of cervical cancer screening among participants in the control group at pre and post-tests. The table showed that only 14 (15.2%) participants had ever gone for CCS at pre and post-test respectively.

Table 3 presents the extent of utilization of cervical cancer screening among participants in the intervention group before (pre-test) and after (post-test) the educational intervention. It revealed that prior to the educational intervention only 10 (10.9%) participants had ever gone for CCS, but after the educational intervention the number increased to 68 (73.9%).

Factors Hindering the Utilization of CCS amongst Participants in the Two Groups Before and After Intervention: Table 4 presents factors hindering the utilization of cervical cancer screening among the 78 participants in the control group who had not ever gone for CCS test at pre and post-tests respectively. 3 (3.8%) out of the 78 participants indicated it was because they were not feeling at risk of the disease at pre and post-test respectively. Only 1 (1.3%) participant out of the 78 responded that it was because of cultural or religious reasons at pre and post-test respectively. 2 (2.6%) indicated it was because they did not have symptoms, while at post-test it increased to 3 (3.8%). Majority 67 (85.9%) responded it was because they were not aware of the test; this number reduced to 64 (82.1%) at post-test. At pre-test 3 (3.8%) indicated that they had not ever gone for CCS test because they did not have time for it, and it increased to 4 (5.1%) at post-test. Finally, the table showed that 2 (2.6%) of the participants at pre-test did not do the test due to fear of outcome of the result, and the number increased to 3 (3.8%) at post-test.

Table 5 presents factors hindering the utilization of cervical cancer screening among the 82 and 24 participants in the intervention group who had not ever gone for CCS test at pre (before intervention) and post-test (after intervention) respectively. At pre-test 4 (4.9%) out of the 82 participants who had not ever done CCS test indicated the reason was because they did not feel at risk of the disease, while at post-test 7 (29.2%) out of the 24 participants who did not do the test after educational intervention, indicated it was also because they did not feel at risk of the disease. At pre-test 3 (3.7%) out of the 82, while at post-test 1

Table 1: Socio-demographic Characteristics of Respondents in the Study Groups

Variable	Control group		Intervention Group	
Age (years)[*1&2]	Frequency	Percentage(%)	Frequency	Percentage (%)
18-24	5	5.4	9	9.8
25-34	17	18.5	27	29.3
35-44	27	9.3	25	27.2
45-54	29	31.5	20	21.7
=55	14	15.2	11	12
Total	92	100	92	100
Marital Status				
Single	5	5.4	4	4.3
Married	80	87	83	90.2
Widowed/Divorced	7.	7.6	5	5.4
Total	92	100	92	100
Religion				
Christianity	92	100	92	100
Total	92	100	92	100
Highest Level of Education				
Tertiary	11	12.0	8	8.7
Secondary	19	20.7	14	15.2
Primary	40	43.4	26	28.3
No Formal Education	22	23.9	44	47.8
Total	92	100	92	100
Occupation				
Housewife	18	19.5	10	10.5
Student/Apprentice	3	3.3	2	2.2
Trader	45	48.9	50	54.3
Civil Servant	16	17.4	18	19.6
Unemployed	10	10.9	12	13.0
Total	92	100	92	100
Monthly Income (Naira)				
<50,000	42	45.7	45	48.9
50,000-100,000	18	19.5	25	27.2
1000,000-200,000	22	23.9	13.	14.1
>200,000	10	0.9	9	9.8

[*1]u= 42.16 SD= 9.90 [*2]u= 38.78 SD= 10.62

Table 2: Extent of Utilization of CCS amongst Participants in the Control Group

Items	Pre-test*1		Post-test*2	
	Frequency	Percentage(%)	Frequency	Percentage(%)
Ever gone for CCS				
Yes	14	15.2	14	15.2
No	78	84.8	78	84.8
Total	92	100	92	100

[*1]u= 0.1522 SD= 0.3593 [*2]u=0.1522 SD= 0.359

Source: Researcher's Field work, 2025

Table 3: Extent of Utilization of CCS amongst Women in the Intervention Group

Items	Pre-test*1		Post-test*2	
	Frequency	Percentage(%)	Frequency	Percentage(%)
Ever gone for CCS				
Yes	10	10.9	68	73.9
No	82	89.1	24	26.1
Total	92	100	92	100

[*1]u= 0.1087 SD= 0.3113 [*2]u= 0.739 SD= 0.439

Source: Researcher's Field work, 2025

Table 4: Factors Hindering Utilization of CCS amongst Participants in the Control Group

Items	Pre-test		Post-test	
	Frequency	Percentage(%)	Frequency	Percentage(%)
Not feeling at risk of the disease	3	3.8	3	3.8
Cultural or religious reasons	1	1.3	1	1.3
Don't have symptoms	2	2.6	3	3.8
Not aware of test	67	85.9	64	82.1
Don't have time to do the test	3	3.8	4	5.1
Test is expensive	0	0	0	0
Fear of outcome of result	2	2.6	3	3.8
Total	78	100	78	100

[*1]u= 11.1429 SD= 22.8235 [*2]u= 11.1429 SD= 21.6130

Source: Researcher's Field work, 2025

(4.2%) out of the 24, responded it was due to cultural and religious reasons respectively. Also at pre-test 2 (2.4%) out of the 82, and at post-test 4 (16.7%) out of the 24 indicated it was because they did not have symptoms respectively. The table further showed that at pre-test, majority 72 (87.8%) had not ever gone for CCS test because they were not aware of the test. Also, 1 (1.2%) at pre-test, and 8 (33.3%) at pot-test indicated it was due to lack of time respectively. At post-test, 2 (8.3%) responded it was because the test was expensive. Finally, at post-test 2 (8.3%) of the participants indicated it was due to fear of outcome of the result.

The paired t-test was used to establish the effect of supportive education intervention program on the participants' extent of utilization of CCS at the post-test phase of the study. Table 6 showed that there was a significant improvement in the extent of utilization of CCS prior to intervention (M= 0.1087, SD= 0.3113) and after intervention (M= 0.739, SD= 0.439) at $p<0.05$. This means that the assessed extent of utilization of CCS by participants in the intervention group improved significantly due to the supportive education intervention program.

Test of Hypothesis: There is no statistically significant effect of Nurse-led educational intervention on the extent of utilization of CCS.

Table 8 presents the summary of paired t-test comparing the difference in mean utilization of CCS between participants in the control and intervention groups during the pre and post- intervention phases of the study. The table revealed that prior to the educational intervention, participants in the control group were better in the extent of utilization of CCS than those in the intervention group with a mean utilization score of 0.1522±0.3593 compared to a mean utilization score of 0.1087±0.3113 for those in the intervention group. The observed difference in mean utilization scores between participants in these groups at the pre-intervention phase of the study was statistically significant at $p<0.05$. The table further revealed that after the educational intervention, participants in the intervention group were far better than those in the control group assessing from a mean utilization score of 0.7390±0.4390 compared to a mean utilization score of 0.1522±0.3593 obtained for participants in the control group. Based on these observations, the null hypothesis is rejected with a conclusion that there was statistically significant effect of Nurse-led educational intervention on the extent of utilization of CCS. This shows that the educational intervention had a significant positive effect on participants ' extent of utilization of CCS indicated by a positive show of utilization of CCS by participants in the intervention group after theeducational intervention.

Summary of the Major Findings:

- There was a significant difference in extent of utilization of CCS between the intervention and control groups after the administration of SENIP ($p< 0.05$).
- The major factor hindering utilization of CCS in both control and intervention groups was lack of awareness.

Extent of Utilization of CCS Amongst the Women in the Two Groups Before Intervention: Table 2 revealed that majority of the participants 78 (84.8%) in the control group had never gone for CCS before the educational intervention program with a mean utilization of 0.1522±0.3593. Also, table 3 showcased that majority of the participants 82 (89.1%) in the intervention group had never gone for CCS before the educational intervention with a mean utilization of 0.1087±0.3113. This implies that the extent of utilization of CCS by participants in both the control and intervention groups was statistically poor before the educational intervention phase. The poor extent of utilization of CCS could be attributed to the poor knowledge of CCS by participants in both study groups as presented in tables 4 and 6, where majority of participants both in control 59 (64.1%) and intervention 52 (56.5%) had poor and very poor knowledge of CCS respectively. Table 8 revealed that prior to the educational intervention, participants in the control group were better in extent of utilization of CCS than those in the intervention group with a mean utilization score of 0.1522±0.3593 compared to a mean utilization score of 0.1087±0.3113 for those in intervention group. The observed difference in mean utilization scores between participants in these groups at the pre-intervention phase of the study is statistically significant at $p < 0.05$. This could be attributed to the fact that participants in the control group have better education, occupation and income as seen in table 1. The study is also in line with that conducted on knowledge, attitude and practice regarding the screening of cervical cancer among women in New Delhi using a total of 220 women[14]. The findings revealed that out of the total population, only 39 (26%) had ever had

Table 5: Factors Hindering Utilization of CCS amongst Participants in the Intervention Group

Items	Pre-test*1		Post-test*2	
	Frequency	Percentage(%)	Frequency	Percentage(%)
Not feeling at risk of the disease	4	4.9	7	29.2
Cultural or religious reasons	3	3.7	1	4.2
Don't have symptoms	2	2.4	4	16.7
Not aware of test	72	87.8	0	0
Don't have time to do the test	1	1.2	8	33.3
Test is expensive	0	0	2	8.3
Fear of outcome of result	0	0	2	8.3
Total	82	100	24	100

*1u= 11.7143 SD= 24.6502 *2u= 3.4286 SD= 2.8213

Source: Researcher's Field work, 2025

Table 6: Summary Statistics for Extent of Utilization of CCS amongst Participants Intervention Group

	Mean	N	Std. Deviation	Std. Mean Error
Utilization of CCS (Pre-test)	0.1087	92	0.3113	0.03246
Utilization of CCS (Post-test)	0.739	92	0.439	0.04578

Source: Researcher's Computation, 2025

Table 7: Paired Sample t-test for Extent of Utilization of CCS amongst Intervention Group

	Paired Difference			95% confidence interval of the difference		t	Df	Sig (2-tailed)
	Mean	Std deviation	Std error mean	Lower	Upper			
Knowledge of CCS (Pre-test) Knowledge of CCS (Post-test)	0.6303	0.3004	0.3102	-0.9763	-0.369	0.294	77	.000

Source: Researcher's Computation, 2025

Table 8: Summary of paired t-test comparing the Mean Extent of Utilization of CCS between the Control and Intervention Groups before and after educational intervention (N = 92 pairs)

	Study phase	Study groups Intervention Group (N=92)	Control Group (N=92)	Statistical comparison between study groups before and after intervention
Mean Utilization Scores	Before intervention	0.1087±0.3113	0.1522±0.3593	p<0.05
	After intervention	0.7390±0.4390	49.9984±0.3593	p<0.05

*Significant at 0.05

Source: Researcher's Computation, 2025

cervical cancer screening. In conclusion, the study demonstrated the lack of awareness in women regarding early symptoms and risk factors associated with cervical cancer for early detection and treatment initiation.

Factors Hindering the Utilization of CCS Amongst Participants in the Two Groups Before Intervention: Findings in table 4 revealed that majority 67 (85.9%) out of the 78 participants in the control group who had not done CCS at the pre-intervention phase of the study responded that it was because they were not aware of the test. This was followed by 3 (3.8%) who indicated they had not done the test because they did not feel at risk of the disease. Also, 2 (2.6%) indicated it was because they did not have symptoms and fear of outcome of result respectively. The table further showed that 1 (1.3%) only responded it was because of cultural or religious reasons. Table 5 showcased that majority 72 (87.8%) out of the 82 participants in the intervention group who had not done CCS before the educational intervention, indicated it was because they were not aware of the test. This was followed by 4 (4.9%) participants who indicated it was because they were not feeling at risk of the disease. Also, 3 (3.7%) responded it was due to cultural or religious reasons, while 2 (2.4%) indicated it was because they did not have symptoms. The findings from the table imply that majority of the participants, both in control and intervention groups, did not do CCS before the educational intervention phase due to lack of awareness, which shows the importance of creating awareness through educational interventions. The study is partly in consonance with the systematic review on the Knowledge, Attitude, and Practice towards Cervic Cancer Screening among Women Globally [22]. Findings showed that the most common reason for not undergoing screening was no signs and symptoms (32.78%), followed by no knowledge (28.21%) and majority of the women thought they were healthy so there was no need for undergoing cervical cancer screening.

Effect of Educational Intervention on the Extent of Utilization of CCS: The study revealed that a significant difference was observed in the extent of utilization of CCS between the control and

intervention groups after the administration of SENIP. In the intervention group, table 3 showcased that prior to the educational intervention, only 10 (10.9%) of the participants had ever gone for CCS, but after the educational intervention the number increased to 68 (73.9%). However, table 2 revealed that in the control group where educational intervention was not done, it was only 14 (15.2%) participants that had ever had CCS both in pre- and post-tests respectively. Table 6 showcased that there was a significant improvement in the extent of utilization of CCS in the intervention group prior to educational intervention (M= 0.1087, SD= 0.3113) and after intervention (M= 0.739, SD= 0.439) at p< 0.05 level of significance. This means that the assessed extent of utilization of CCS by participants in the intervention group improved significantly due to SENIP. The study is similar to that conducted on impact of health education intervention in promoting CCS among rural women of Chengalpattu district – A community-based intervention study [28]. The study concluded that, after the intervention of health education, screening rate for cervical cancer was increased, and therefore suggested that health education model had proved to be effective on cervical cancer prevention.

Implications of the Findings: The results of the present study revealed that supportive education nursing intervention package (SENIP) had positive effect on the participants' extent of utilization of CCS after the intervention program. This is because SENIP is a plan of care designed to help equip women with knowledge on cervical cancer and CCS and improve women's health and well-being which will in turn encourage routine cervical cancer screening. In addition, it will be useful in formulating policies to help ease anxieties and challenges faced prior to and during screening, in order to increase CCS uptake.

Limitations of the Study:

The researcher encountered the following constraints during the course of the study;

1. The literacy level of the participants necessitated the use of a local interpreter to relate with the respondents in their own dialects.
2. Some of them did not have mobile phones or other means of modern-day communication, coupled with poor network encountered in the remote areas.
3. Lack of cervical cance r screening centers in the communities, which seemed to discourage some of the participants from translating the acquired knowledge into practice, that is, prompt screening.

CONCLUSIONS

A significant difference was observed between the intervention and control groups in their extent of utilization of CCS at post-intervention (P< 0.05). Notably, SENIP made the intervention group to have a positive change in their extent of utilization of CCS after the intervention. The major factor hindering utilization of CCS in both control and intervention groups was lack of awareness. The study recommended that there should be an advocacy for provision of CCS centers in rural communities in each local government area, at an affordable or no cost to encourage full participation or mass utilization of CCS by women. In this regard, government, community leaders and non-governmental organizations (NGOs) can partner with state and federal tertiary health institutions to establish focal screening centers in the communities and assign trained health professionals.

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Data Availability: Data are available for request but will soon be deposit in public domain.

Declarations

Ethical Approval: Ethical approval has been obtained from the research and ethics committees of Department of Nursing, selected Local Government Areas of Ebonyi State, and Directorate of research ethical committee of Ebonyi state university Ebonyi State University.

Consent to Participate: All the participants in this study gave an informed consent to participate in the study following description of the aim and design of the study to them by the researcher.

Consent for the Publication: Not applicable to the manuscript

Competing Interests: Non declared.

REFERENCES

1. J. Agboeze, Ezeani, N.N., Nwali, M., Ukaegbu, C. and Mu'awiyyiah-Babale, S., 2022. Cervical Cancer Screening Knowledge, Uptake and Barriers among Female Undergraduates in a Nigerian University. Nigerian Medical Journal, 63: 220-225.
2. American Cancer Society 2023. Prevent 6 Cancers with the HPV Vaccine.
3. C. Anene-Okeke, Aluh, D. and Okorie, U. 2019. Knowledge, Attitudes and Practice of Cervical Cancer Prevention among Student Health Professionals in Nigeria. Asian Pacific Journal of Cancer Care, 4:125-130.
4. Y.H. Aweke, Ayanto, S.Y. and Ersado, T.L. 2017. Knowledge attitude and practice for cervical cancer prevention and control among women of child bearing age in Hossana Town, Hadiya zone, Southern Ethiopia: Community based across-sectional study. PloS One 12: e0181415. Doi: 10.1371/journal.pone. 0181415.
5. J. Berkhof, 2023. International Agency for Research in Cancer (IARC) Handbook on cervical cancer screening: value of this evidence synthesis for modeling 224.
6. E. Black, Hyslop F. Richmond R. Barriers and facilitators to uptake of cervical cancer screening among women in Uganda: a systematic review. BMC Womens Health. 2019, 19:108.
7. Basic Information About Cervical Cancer (2022).
8. Bray, F., Ferlay, J., Soerjomataram, I., Siegel, R.L., Torre, L.A. and Jemal, A., 2018. Global cancer statistics: GLOBOCAN estimates of incidence and mortality worldwide for 36 cancers in 185 countries. CA Cancer J Clin. 68: 394-424. Crossref. Pubmed. Scopus (63260).
9. M. Brisson, Kim .J.J, Canfell .K, Drolet .M, Gingras .G, Burger .E.A, *et al* 2020. Impact of HPV vaccination and cervical screening on cervical cancer elimination: a comparative modelling analysis in 78 low-income and lower-middle-income countries. Lancet. 395: 575-590.
10. CDC, 2021. National Breast and Cervical Cancer Early Detection Program (NBCCEDP).
11. Centers for Disease Control and Prevention 2024. (U.S.). Screening for Cervical Cancer
12. Cleveland (2024) https://health.clevelandclini. org/I-just-sit-there-get-moving-to-cut-your-cancer-risk.
13. S.J. Curry, Krist, A.H., Owens, D.K., Barry, M.J., Caughey, A.B. and Davidson, K.W. 2021 .Screening for cervical cancer: U.S. Preventive Services Task Force recommendation statement. U.S. Preventive Services Task Force. JAMA 2018, 320:674-686.
14. Dahiya, N., Aggarwal, K., Singh, M.C., Garg, S. and Kumar, R. 2019. Knowledge, attitude, and practice regarding the screening of cervical cancer among women in New Delhi, India. Tzu Chi Medical Journal, 31: 240-243, DOI: 10.4103/tcmj. tcmj_145_18.
15. J.F. Ducray, Kell .C.M, Basdav .J, Haffejee .F 2021. Cervical cancer knowledge and screening uptake by marginalized population of women in inner-city Durban, South Africa: Insights into the need for increased health literacy. Womens Health (Lond). ;17:17455065211047140.
16. Healthy People 2020. Cancer. 2021.
17. F. Kassymbekova, Rommel .A, and Kaidarova .D, *et al*. 2024. Developing HPV Vaccination Communication Strategies: Assessing Knowledge, Attitudes, and Barriers Among Healthcare Professionals in Kazakhstan. Vaccines; 12:1225. DOI: 10.3390/vaccines12111225. PMID: 39591128;
18. J. O. Maitanmi, Fabiyi, T. E., Eniola, O., Sansi, T. O., Blessing, J. O., Maitanmi, B., Ojewale, M. O., Dairo, A. A., Adebiyi, D. A. and Akingbade, O. 2023. Knowledge and acceptability of cervical cancer screening among female undergraduates in Babcock University Ilishan-Remo, Ogun State, Nigeria. Ecancermedicalscience, 17, 1502. https://doi.org/10.3332/ecancer.2023.1502.
19. T. Marashi, Irandoost .S.F, Yoosefi Lebni .J, Soofizad .G, 2021. Exploring the barriers to Pap smear test in Iranian women: a qualitative study. BMC Womens Health; 21:287.
20. Z. Mengyue, Janet, W.H., Sit, K.C. and Carmen, W.H.C. 2023. A theory-driven, culture-tailored educational intervention for cervical cancer screening among rural Chinese females: A feasibility and pilot study. Open Access. Published: 2023. DOI: https//doi.org/10.1016/ j.apjon.2023.100218.
21. National Cancer Institute (U.S.) 2023. Human Papillomavirus (HPV) Vaccines (https://www.cancer.gov/about-cancer/causes-prevention/risk/infectious-agents/hpv-vaccine-fact-sheet). Reviewed 5/25/2021. Accessed 11/9/2023.
22. Neha, M., Neha, T., Rajashree, S., Akanksha, P., Bhavika, C., Aanchal, A. and Awasthi, R.J. (2020). Knowledge, Attitude & Practice towards Cervical Cancer Screening among Women Globally – A Systematic Review. Journal of Women's Health and Development 3: 194-210.
23. T. Olubodun, Balogun, M.R. and Odeyemi, A.K. 2022. Barriers and recommendations for a cervical

cancer screening program among women in low-resource setting in Lagos Nigeria: a qualitative study. BMC Public Health, 22, 1906 https://doi.org/10.1186/s12889-022-14314-2.

24. Organization WH 2020. Global strategy to accelerate the elimination of cervical cancer as a public health problem. World Health Organization;
25. Seyoum, A., Assefa, N., Gure, T., Seyoum, B., Mulu, A. and Mihret, A. 2022. Prevalence and genotype distribution of high-risk human papillomavirus Infection among Sub-Saharan African women: a systematic review and Meta-analysis. Front Public Health. 10: 890880. https://doi.org/10.3389/fpubh.2022.890880/full.
26. Singh, D., Vignat, J., Lorenzoni, V., Eslahi, M, Ginsburg, O. and Lauby-Secretan, B. (2023). Global estimates of incidence and mortality of Cervical cancer in 2020: a baseline analysis of the WHO Global Cervical Cancer Elimination Initiative. The Lancet Global Health. 11:e197-206.
27. H. Sung, Ferlay .J, Siegel .R.L, Laversanne .M, Soerjomataram .I, Jemal .A, *et al* 2020. Global Cancer Statistics 2020: GLOBOCAN estimates of incidence and mortality worldwide for 36 cancers in 185 countries. CA Cancer J Clin.;71:209-249.
28. Thahirabanuibrahim, Muthunarayanan Logaraj. 2021. Impact of health education intervention in promoting cervical cancer screening among rural women of Chengalpattu district – The community based interventional study.Clinical Epidemiology and Global Health, 12: 2021, 100895,
29. World Health Organization, 2024. International Agency for Research on Cancer. Cancer Today [Internet]. Lyon: Global Cancer Observatory (GLOBOCAN);
30. World Health Organization 2023. Comprehensive cervical cancer prevention and control: A healthier future for girls and women. Geneva, Switzerland: World Health Organization.
31. World Health Organization. 2024. WHO guidelines for screening and treatment of precancerous lesions for cervical cancer prevention. Geneva: WHO.
32. WHO. 2020. World Health Assembly adopts global strategy to accelerate cervical cancerelimination.
33. Yalma, RM., Okafor Ebuka 2025. Knowledge, Attitude and Practice Towards Cervical Cancer Screening and Human Papillomavirus Vaccination Among Women in Passo Community, Abuja,Nigeria. Asian Jour Hosp Phar, Vol 5. 2025, 13-17.
34. G. Zomordi, Moradi, M., Hasanzadeh, M. and Ghavami, V. 2022. The effect of education based on the theory of planned behavior on the intention of vaccination against human papillomavirus in female students: A controlled educational trial. Journal of Education and Health Promotion, 11: 237.
35. Cervical cancer screening guideline'' 2023. https://www.who.int/health-topics/cervical cancer.