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Impact of Cervical Cancer Screening Education on Knowledge, Attitude, and Willingness to Uptake HPV Self-Sampling in Delta State

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Abstract

Cervical cancer remains a significant public health challenge in Nigeria, particularly among women of childbearing age. Despite available screening methods, the uptake of Human Papillomavirus Self-Sampling (HPVSS) remains low due to limited awareness and knowledge. This study evaluated the outcomes of a cervical cancer screening educational intervention on knowledge, attitude, and willingness to uptake HPVSS among childbearing women in Delta State, Nigeria. A quasi-experimental study was conducted using pre- and post-intervention assessments. A total of 196 questionnaires (98 each at pre- and post-intervention) were analyzed using SPSS version 25.0. The intervention involved structured educational sessions on cervical cancer screening and HPVSS. Descriptive statistics and paired-sample t-tests were used for data analysis. Post-intervention, awareness of HPVSS increased from 35.7% to 66.3%. The proportion of women with adequate knowledge improved from 6.1% to 45.9%. Positive attitude towards HPVSS risen from 99% to 100%, while willingness to uptake HPVSS improved from 93.9% to 99%. Significant differences were observed between pre- and post-intervention scores across all measured parameters ($p < 0.000$). The educational intervention significantly improved knowledge, attitude, and willingness to uptake HPVSS among childbearing women. These findings suggest that structured educational programs can enhance cervical cancer screening awareness and acceptance of HPVSS, potentially increasing screening uptake and reducing cervical cancer burden in Nigeria.

Keywords*: Cervical Cancer Screening, Educational Intervention, HPV Self-Sampling, Impact, Women's Health.*

Introduction

Cervical cancer is the fourth most common cancer among women globally, with over 660,000 new cases and approximately 350,000 deaths in 2022 [1]. Over 94% of cervical cancer-related deaths occur in low- and middle-income countries (LMICs), including Nigeria, where the burden is particularly high [2]. The World Health Organization (WHO) has developed a 90–70–90 strategy to eliminate cervical cancer by 2030, which includes HPV vaccination, increased screening, and improved access to treatment [3].

Human Papillomavirus (HPV) infection is the leading cause of cervical cancer, with HPV types 16 and 18 accounting for 70% of cases [4]. HPV Self-Sampling (HPVSS) is a

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convenient and effective method for increasing screening uptake, particularly among underserved populations [5]. However, in Nigeria, uptake remains low due to limited awareness, cultural beliefs, and accessibility challenges [6]. Educational interventions can address these barriers by improving knowledge, attitudes, and willingness to participate in screening programs [7].

This study assessed the impact of a cervical cancer screening educational intervention on knowledge, attitude, and willingness to uptake HPVSS among childbearing women in Delta State, Nigeria.

Methods

A quasi-experimental design was employed, with pre- and post-intervention assessments conducted among 196 childbearing women in Delta State. Participants were recruited from primary healthcare centers using a multi-stage sampling technique. The intervention consisted of structured educational sessions covering cervical cancer risk factors, HPV infection, and self-sampling procedures.

Data collection was conducted using a structured questionnaire adapted from previously validated instruments [8]. Data analysis was performed using SPSS version 25.0. Paired-sample t-tests were conducted to determine significant differences between pre- and post-intervention scores, with a significance level set at $p < 0.05$.

Results

Socio-Demographic Characteristics

The study sample included 98 women in both the pre- and post-intervention phases. The majority (68.4%) were aged 20–35 years, 93.9% were married, and 57.1% had a tertiary education (Table 1).

Table 1. Respondents Socio-demographic Data (N=98)

Personal Socio-demographic	**Frequency**	**Percent**
Age range (years)		
18-19	2	2
20-35	67	68.4
36-49	23	23.5
50-58	6	6.1
Marital Status		
Single	6	6.1
Married	92	93.9
Highest Educational level		
Tertiary Education	56	57.1
Secondary Education	33	33.7
Primary Education	5	5.1
Informal Education	4	4.1
Religion		
Christianity	92	93.9
Islam	4	4.1
Traditional	2	2

Occupation		
Unemployed	7	7.1
Student	1	1
Trading	45	45.9
Artisan	20	20.4
Civil servant	25	25.5

Age: *minimum = 18, maximum = 58, mean ± SD = 32±8.91*

Changes in Awareness and Knowledge of HPVSS

Post-intervention, awareness of HPVSS increased from 35.7% to 66.3%, while knowledge of cervical cancer prevention improved significantly. The proportion of women with adequate knowledge rose from 6.1% to 45.9% (Table 2).

Table 2. Respondents Awareness of HPVSS (N=98)

Awareness of HPV Self-sampling (HPVSS)	**Pre-intervention**		**Post-intervention**	
	Freq	**%**	**Freq**	**%**
Awareness of cervical cancer disease				
Aware	68	69.4	89	90.8
Not aware	30	30.6	9	9.2
Preventability of cervical cancer				
Preventable	78	79.6	82	83.7
Not preventable	16	16.3	7	7.1
I don't know	4	4.1	9	9.2
Awareness of HPVSS method of preventing cervical cancer				
Aware	35	35.7	65	66.3
Not aware	63	64.3	33	33.7
Source of awareness of HPVSS				
Family members	2	2	4	4.1
Health workers	25	25.5	55	56.1
Mass media	7	7.1	4	4.1
Friends/co-workers	7	7.1	1	1
School	1	1	2	2
Never heard it before	56	57.1	32	32.7
Period of HPVSS awareness				
Less than one year	24	24.5	46	46.9
Above one year	11	11.2	19	19.4
Never heard of it before	63	64.3	33	33.7

Attitude towards HPVSS

Before the intervention, 99% of participants exhibited a positive attitude towards HPVSS, which increased to 100% post-intervention (Figure 1).

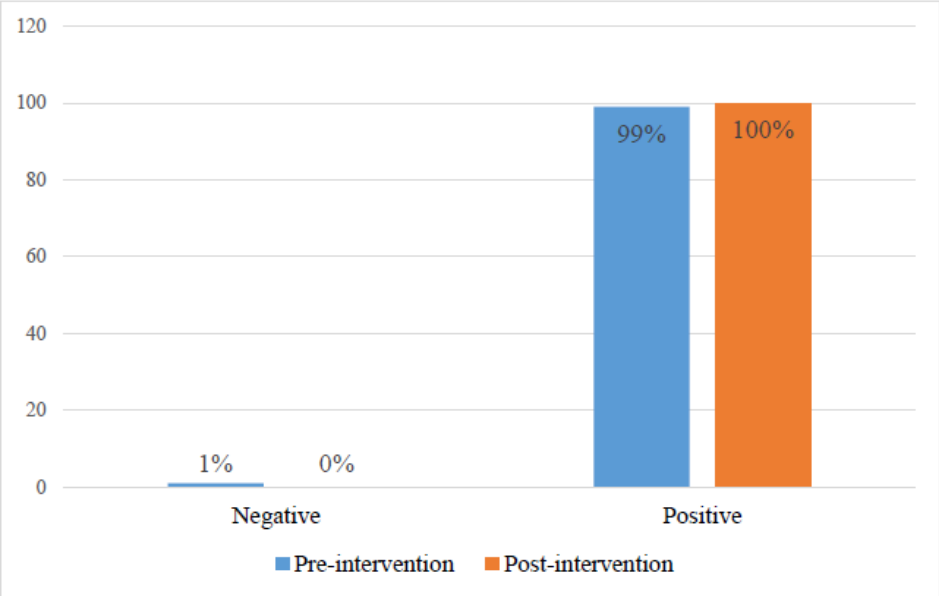

Figure 1. Respondents Attitude towards HPVSS (N=98)

Willingness to Uptake HPVSS

In Figure 2, willingness to undergo HPVSS increased from 93.9% to 99% post-intervention. The paired-sample t-test indicated statistically significant improvements across all measured parameters ($p < 0.000$).

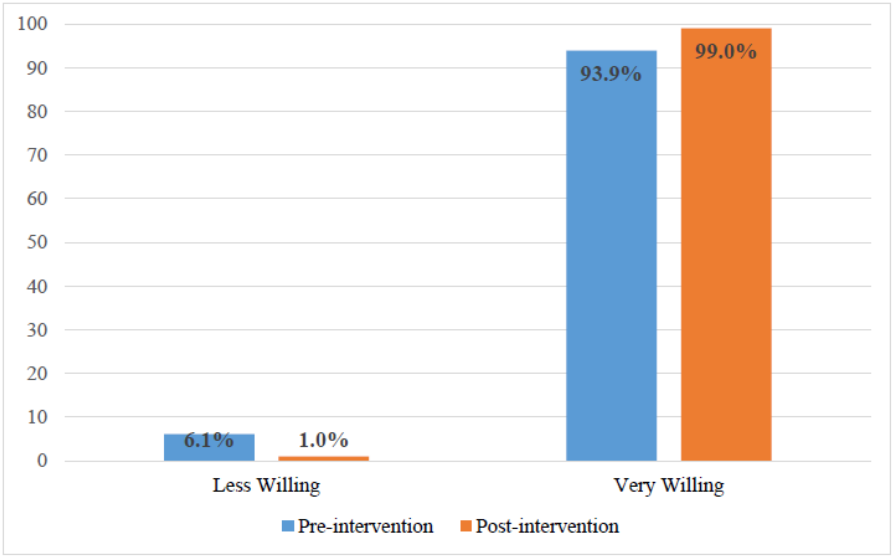

Figure 2. Respondents' Level of Willingness to Uptake HPVSS (N=98)

Discussion

The findings of this study align with global evidence indicating that educational interventions enhance cervical cancer screening uptake [9]. Similar studies in Nigeria and Sub-Saharan Africa have reported that knowledge gaps and cultural barriers hinder HPVSS adoption [6]. Our study demonstrated that targeted educational programs can significantly improve knowledge, attitudes, and willingness to undergo HPVSS.

Despite these promising findings, challenges such as limited healthcare access and the affordability of screening kits remain key barriers. Governmental and non-governmental organizations should prioritize subsidizing HPVSS kits and integrating educational interventions into existing reproductive health programs [10].

Conclusion and Recommendations

This study demonstrates that a structured cervical cancer screening educational intervention significantly improves knowledge, attitude, and willingness to uptake HPVSS among childbearing women in Delta State. To sustain these improvements, healthcare policymakers should integrate HPVSS awareness programs into routine maternal healthcare services. Further large-scale studies are recommended to assess the long-term impact of such interventions on cervical cancer prevention.

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