



KNOWLEDGE AND STATED PRACTICE OF VISUAL INSPECTION WITH ACETIC ACID (VIA) SCREENING FOR EARLY DETECTION OF CERVICAL CANCER AMONG COMMUNITY HEALTH OFFICERS OF DARJEELING, WB

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ABSTRACT

Cervical cancer is a major public health concern, especially in low-resource settings. Visual Inspection with Acetic Acid (VIA) is a cost-effective method for early detection. Community Health Officers (CHO) play a vital role in implementing VIA screening programs. This study aimed to assess the knowledge and stated practice of VIA screening for early detection of cervical cancer among Community Health Officers (CHO). A non-experimental descriptive study was conducted among 126 Community Health Officers of (CHO) Darjeeling District and selected through non-probability purposive sampling. Data were collected using a self-structured questionnaire covering demographic details, knowledge, and stated practice regarding VIA. Descriptive and inferential statistics were used for data analysis. The majority of participants (76%) had good knowledge, and (67%) demonstrate good stated practice. A significant positive correlation was found between knowledge and stated practice ($r = 0.69$, $p = 0.0001$). Marital status ($\chi^2 = 28.58$, $p = 0.05$) were significantly associated with knowledge level. This study highlights the need for targeted educational interventions to improve knowledge and stated practice levels among Community Health Officers CHO, particularly in rural areas. The findings have implications for healthcare policy and Practice, informing the development of training programs and policies aimed at enhancing the capacity of Community Health Officers (CHO) in Visual Inspection with Acetic Acid (VIA).

Key Words: Cervical cancer, healthcare, knowledge, Community Health Officers (CHO).

INTRODUCTION

"Knowledge is power, and in the case of cervical cancer, knowledge can be lifesaving."

Cervical cancer continues to be a major public health challenge, particularly in low- and middle-income countries (LMICs) like India, where access to preventive screening and treatment remains limited for large sections of the population. According to the GLOBOCAN 2020 report, cervical cancer is the fourth most common cancer among women globally, accounting for approximately 604,000 new cases and 342,000 deaths annually. Alarming, 85% of new cases and 90% of cervical cancer deaths occur in LMICs. Despite being largely preventable through timely screening and vaccination, cervical cancer continues to impose a substantial disease burden, particularly in countries with limited resources and inadequate screening coverage. [1]

India accounts for nearly 1 in 5 cervical cancer cases globally, with 123,000 new cases and 77,000 deaths annually. [3] Rural and underserved populations are hit hardest due to low awareness, limited screening access, and shortage of trained personnel. This results in delayed detection, with a crude incidence rate of 18 per 100,000 women and a lifetime risk of 2%. [3] According to the ICMR-NCRP 2023, India's estimated cervical cancer prevalence was 342,333 cases. In West Bengal, the Age-Adjusted Incidence Rate is 8.7 per 100,000 population, highlighting significant regional disparities in disease burden and screening uptake. [2] Recommended by the World Health Organization WHO, Visual Inspection with Acetic Acid (VIA) is low-cost screening method, particularly suitable for low- and middle-income countries (LMICs) settings where cytology (Pap smear) and HPV DNA testing are logistically challenging. [3] VIA provides same-visit screening and treatment opportunities, reducing the risk of loss to follow-up. In India, VIA has been incorporated into national cervical cancer screening guidelines as a frontline method for early detection. [4]

Community Health Officers (CHOs) are at the frontline of this effort. They plan, implement, and support VIA screening in communities with the least access to care. Their knowledge and practice directly affect how many women get screened and treated on time. This study assesses the knowledge and stated practice of CHOs in Darjeeling regarding VIA screening, to identify gaps and strengthen cervical cancer prevention at the grassroots level.



Background of the study

Cervical cancer is caused by persistent infection with high-risk HPV strains, accounting for >95% of cases globally. The disease progresses slowly from precancerous lesions to invasive cancer, making it highly preventable through timely detection and treatment. While HPV vaccination and screening have reduced incidence and mortality in high-income countries, limited resources, weak infrastructure, and low awareness hinder implementation in LMICs like India. [1] Globally, 57% of cancer cases and 65% of cancer deaths occur in LMICs, where cervical cancer contributes substantially to morbidity and mortality. In response, WHO launched the Global Strategy to Eliminate Cervical Cancer (2020) with targets of 90% HPV vaccination, 70% screening, and 90% treatment coverage by 2030. India, a top contributor to the global burden, has adopted national programs to expand screening in rural areas. Among screening methods, Pap smear and HPV testing require laboratory infrastructure, trained personnel, and multiple visits, limiting feasibility in resource-constrained settings. [12] Visual Inspection with Acetic Acid (VIA) is simple, inexpensive, provides immediate results, and enables a “screen-and-treat” approach that reduces loss to follow-up. [11] WHO endorsed VIA in 1997 for low-resource settings, and India integrated it into the NPCDCS program in 2010 for delivery at primary health facilities. VIA can be performed by mid-level health workers after brief training, but gaps in knowledge and practice persist among providers. Effective cancer control requires operational policies, registries, and referral pathways.[12] In 2015, 87% of countries had a cancer policy, but only 68% were operational, with greater gaps in low- and middle-income regions. Population-based cancer registries increased from 47% to 63% of countries between 2010–2015, improving data for planning.[8] Early diagnosis improves outcomes, yet only 66% of countries had programs for early detection of cervical cancer at primary care level, and 67% had defined referral mechanisms for cervical and breast cancers. Globally, 79% of countries reported some form of cervical cancer screening, but organized, population-based programs were more common in high- and upper-middle-income countries. [9]

Problem Statement

Knowledge and Stated practice of Visual Inspection with Acetic Acid (VIA) screening for early detection of cervical cancer among community health officers of Darjeeling, West Bengal.

Objectives of the study

1. To assess the knowledge regarding visual inspection with acetic acid (VIA) screening for early detection of cervical cancer among community health officers.
2. To evaluate the stated practice regarding visual inspection with acetic acid (VIA) screening for early detection of cervical cancer among community health officers.
3. To find out the co-relation between knowledge and stated practice regarding visual inspection with acetic acid (VIA) screening for early detection of cervical cancer among Community Health Officers
4. To find out the association between knowledge regarding visual inspection with acetic acid (VIA) screening for early detection of cervical cancer among Community Health Officers with their selected demographic variables.

RESEARCH METHODOLOGY

Research Approach

Quantitative research approach adopted for the present study. It was used for the study to accomplish the objectives as it was felt that it would be appropriate for the purpose.

Research Design

Non -experimental Descriptive research design adopted for the present study

Population

A Population is an aggregate of elements that meets the designated set of criteria. The population of this study comprised of all Community Health Officers (CHO) of, Darjeeling, West Bengal.

Sample

Sample consists of subset of units representing the population. The Community Health Officers (CHO) at selected blocks of Darjeeling District, West Bengal were the sample for the present study

Data Collection Tools and Techniques

Data collection means the precise, systematic gathering of information relevant to the research purpose or specific objectives, questions of the study.


Table 1: Data collection tools and techniques.

Sl. No.	Variables to be measures	Tools	Technique of data collection
1.	Demographic Variables	Structured Questionnaire	Pen and paper method
2.	Knowledge regarding visual inspection with acetic acid (VIA) screening for early detection of cervical cancer.	Structured knowledge questionnaires	Pen and paper method
3.	Stated practice regarding visual inspection with acetic acid (VIA) screening for early detection of cervical cancer.	Structured stated practice questionnaires	Pen and paper method

Analysis and interpretation of data

Table 2: Frequency and Percentage Distribution of Demographic Characteristics of Community Health Officers n =126

Category	Frequency	Percentage (%)
Age		
≤ 25 years	27	21
26-35 years	76	60
36-46 years	21	17
≥ 46 years	2	2
Marital Status		
Unmarried	64	51
Married	62	49
Professional Qualification		
GNM	101	80
Post Basic	5	4
B.Sc	20	16
Years of Experience In-Service		
< 5 years	65	51
5 - 10 years	41	33
> 10 years	20	16
Residence		
Rural	78	62
Urban	48	38
Previous Experience on VIA Screening		
Yes	126	100
No	-	-
Previous In-Service Education Training		
Yes	126	100.00%
No	-	-
Year of Experience as a Community Health Officer		
< 3 years	78	62
> 3 years	48	38

Data presented in Table 2: depicts the majority of participants (60.0%) were aged 26–35 years, followed by 21.0% aged ≤25 years, 17.0% aged 36–45 years, and 2.0% aged ≥46 years, reflecting that most of the participants were in the early to mid -stage of their professional careers. With respect to marital status, 51.0% of CHOs were unmarried and 49.0% were married, reflecting a balanced distribution. Regarding professional qualification, 80.0% held a General Nursing and Midwifery (GNM) diploma, 16.0% possessed a Bachelor of Science in Nursing degree, and 4.0% had completed a Post Basic Bachelor of Science in Nursing program. In terms of professional

experience, 52.0% of participants had less than five years of service in government employment, 33.0% had 5–10 years, and 15.0% had more than ten years. Similarly, 62.0% had served as CHOs for less than three years, while 38.0% had more than three years of experience in the role. Geographically, 62.0% of CHOs resided in rural areas and 38.0% in urban areas, consistent with the primary deployment of CHOs in rural healthcare settings. All participants (100.0%) reported prior experience in Visual Inspection with Acetic Acid (VIA) screening and had received in-service training, indicating that the study sample comprised trained and practice-experienced personnel.

Regarding experience as Community Health Officers (CHO), 62.0% had less than three years of service, while 38.0% had three or more years, indicating that the majority of participants were relatively new to the role.

Table 3: correlation between knowledge and stated practice regarding Visual Inspection with Acetic Acid (VIA) for early detection of cervical cancer. n =126

Variables	Mean Score	SD	R	T
Knowledge regarding	25.11	1.58	0.69	10.61*
Stated Practice	20.9	1.57		

t (df 124) = 3.29, p <0.0001

Table 3: The data analysis revealed that the mean knowledge score was 25.11 ± 1.58 and the mean stated practice score was 20.90 ± 1.57 , indicating sound knowledge but a gap in translating it to practice. Pearson correlation revealed a moderate positive relationship between knowledge and stated practice ($r = 0.69$, $t = 10.61$, $df = 124$, $p < 0.0001$). This statistically significant association suggests that higher knowledge levels are linked to improved stated practice of VIA screening. The findings demonstrate the need for regular refresher training, supportive supervision, and policy measures to bridge the knowledge-practice gap and enhance the effectiveness of cervical cancer screening by Community Health Officers.

Table 4: Chi-square statistics value showing association between knowledge regarding visual inspection with acetic acid (VIA) screening for early detection of cervical cancer among Community Health Officers with their selected demographic data. n= 126

Demographic Variables	Knowledge		Chi-Square (χ^2)	Significance
	$\leq$ Median 25	Median 25		
Age (in completed year)				
≤ 25 year	18	14	0.52	Not Significant
> 25 years	46	48		
Married Status				
Married	47	16	28.58*	Significant
Unmarried	17	46		
Professional Qualification				
General Nursing and Midwifery (GNM)	54	52	0.94	Not Significant
Bachelor of Science in Nursing (B.Sc) / Post Basic B.Sc Nursing	10	10		
Years of experience in Government service				
< 5 years	39	37	0.021	Not Significant
5 years	25	25		
Residence				
Urban	27	23	0.34	Not Significant
Rural	37	39		
Years of experience as Community Health Officers (CHO)				
< 3 years	54	55	0.54	Not Significant
> 3 years	10	7		

χ^2 (df1) = 3.841; *Significant at $p < 0.05$, χ^2 (df1) = 6.63, $p < 0.01$, χ^2 (df1) = 10.83, $p < 0.00$

Table 4: revealed the association between knowledge levels and selected demographic and professional variables. A statistically significant association was found only for marital status ($\chi^2 = 28.58$, $p < 0.001$), with



married participants demonstrating higher knowledge scores compared to unmarried participants. No significant associations were observed for age ($\chi^2 = 0.52$, $p < 0.05$), professional qualification ($\chi^2 = 0.94$, $p < 0.05$), years of government in service ($\chi^2 = 0.021$, $p < 0.05$), residence ($\chi^2 = 0.34$, $p < 0.05$), or years of experience as a Community Health Officer ($\chi^2 = 0.54$, $p < 0.05$). These findings indicate that knowledge levels regarding Visual inspection with Acetic Acid (VIA) screening were independent of age, qualification, experience, and residence, and varied significantly only by marital status.

DISCUSSION

The study found that Community Health Officers demonstrated predominantly good knowledge of VIA screening, with the lowest scores in program implementation. Despite this, stated practice levels were moderately lower, indicating a knowledge-practice gap commonly observed in community health settings. The moderate positive correlation between knowledge and practice suggests that strengthening knowledge can enhance reported screening behavior. Among demographic variables, only marital status showed a significant association with knowledge, while age, qualification, experience, and residence did not. This implies that VIA competency among Community Health Officers is largely independent of these factors, supporting the effectiveness of standardized in-service training. The findings align with existing literature that emphasizes training alone is insufficient without supportive supervision and systemic reinforcement. Addressing this gap through regular refresher programs and monitoring mechanisms can improve the coverage and quality of cervical cancer screening at the community level.

RECOMMENDATIONS

The primary aims of this current study was to disclose the knowledge and stated practice regarding visual inspection with acetic acid (VIA) screening for early detection of cervical cancer among community health officers. The further recommendations suggested are:

- Assess the impact of nurse-led visual inspection with acetic acid (VIA) screening programs on cervical cancer detection and women's health outcomes can be done.
- A comparative study to be done between the visual inspection with acetic acid (VIA) screening with other cervical cancer screening methods.
- Evaluating of visual inspection with acetic acid (VIA) screening role in cervical cancer prevention and control programs.
- Assess of visual inspection with acetic acid (VIA) screening acceptability and feasibility in rural area.
- Effectiveness of visual inspection with acetic acid (VIA) screening in reducing cervical cancer mortality.

CONCLUSION

This study assessed the knowledge and stated practice of VIA screening for early detection of cervical cancer among 126 Community Health Officers in Darjeeling, West Bengal. The majority of CHOs demonstrated good knowledge (76%) and good stated practice (67%) of VIA screening. All participants reported prior training, contrasting with previous studies reporting low training coverage. A moderate positive correlation was found between knowledge and stated practice ($r = 0.69$, $p < 0.0001$), indicating that higher knowledge is associated with better reported practice. Among demographic variables, only marital status showed a significant association with knowledge levels. The findings suggest that while training has improved knowledge levels, strengthening supportive supervision and refresher programs is needed to bridge the remaining knowledge-practice gap and enhance the effectiveness of cervical cancer screening at the community level.

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