



## **THE EFFECTIVENESS OF THE LEVEL OF EDUCATIONAL KNOWLEDGE VULVA HEALTH HYGIENE ABOUT PRIMARY PREVENTION CERVICAL CANCER IN FEMALE PERSONNEL AT INDONESIAN COAST GUARD, JAKARTA**

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### **Abstract**

Cervical cancer is still a major health problem in women, so primary prevention through increasing reproductive health knowledge, including vulvar hygiene, is very necessary. The results of observations in the female personnel of Bakamla RI showed that of the 81 participants who underwent Pap smears, 29 people (35.8%) experienced inflammation, which indicates a potential reproductive health problem. This condition shows that even though early detection has been carried out, the reproductive health knowledge of Bakamla RI female personnel still needs to be improved through health education as an effort to prevent cervical cancer. Methods *this study uses a quantitative method with Pretest-Posttest Design. The sample is 20 female personnel of Bakamla RI. The test used is the Wilcoxon Statistical Test. The results of the pre-test showed that the level of knowledge of the respondents still varied with an average score of 61.75, which reflects that the respondents' understanding of the Vulva Hygiene material was not optimal. After being given a health education intervention, the results of the post test showed a significant increase with the average score increasing to 97.25 and all respondents were in the category of good knowledge. Statistical analysis using the Wilcoxon Signed Rank Test test resulted in a value of  $p = 0.000 (< 0.05)$ , which shows a significant difference between the level of knowledge before and after being given health education. Thus, health education on Vulva Hygiene delivered through leaflet and phantom media is an effective educational method as a primary prevention of cervical cancer in female personnel within the Maritime Security Agency of the Republic of Indonesia.* Discussion this study shows that health education interventions can effectively increase knowledge about vulvar hygiene as a primary prevention strategy for cervical cancer among female personnel of Bakamla RI. Increased knowledge suggests that structured health education plays an important role in strengthening understanding of reproductive health and preventive behaviors. These findings support the integration of health education programs as a routine and strategic approach to improve cervical cancer prevention efforts among women in the workplace.

**Keywords:** *Cervical Cancer; Health Knowledge; Health Education; Vulva Hygiene*

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## INTRODUCTION

Reproductive health is an important component of women's health that affects their physical, mental, and social well-being. Maintaining reproductive health does not only focus on the ability to have children, but also includes disease prevention, early detection of health problems, and management of conditions that affect quality of life [1]. Reproductive health is an important component of women's health that affects their physical, mental, and social well-being. Maintaining reproductive health not only focuses on the ability to have children, but also includes disease prevention, early detection of health problems, and management of conditions that affect quality of life [2].

Cervical cancer is a cancer that affects many women. Not surprisingly, cervical cancer currently ranks second among cancers affecting women in the world and first for women in developing countries. From the data of the World Health Organization, it is known that there are 493,243 people per year with new cervical cancer patients in the world with a death rate due to this cancer of 273,505 people per year [3].

Cervical cancer is one of the leading causes of death for women, occupying the fourth position globally according to GLOBOCAN data in 2020. There were about 604,000 new cases of cervical cancer or 7.7% of the total incidence of cancer in the world, with more than 342,000 deaths, exceeding 50% of diagnosed cases [4]. According to the GLOBOCAN 2022 (WHO-IARC) report, cervical cancer (Uterine Cervix) is still one of the significant health problems in Indonesia, in 2022 there were 36,964 new cases recorded which is equivalent to 9.0 of all cancer cases in Indonesia, with 20,708 people dying from cervical cancer and making it the fourth highest cause of cancer death in Indonesia[5].

Data from the Ministry of Health of the Republic of Indonesia in 2020 shows that in Indonesia cervical cancer is the second most common type of cancer that affects women, the number of women aged 15 to 45 years is estimated at 144,250,230 people. Of these, only 8.3% or about 3,207,659 women underwent cervical cancer prevention, and 1.6% or about 50,171 women were found positive for Visual Inspection with Acetic Acid (IVA), with about 36,633 women suffering from cervical cancer [6].

Human papillomavirus (HPV) is the most common virus found in sexually transmitted diseases and is thought to play a role in the process of cancer. There are about 130 types of HPV that have been successfully identified and more than 40 types of HPV can infect the male and female genital areas, mouth, and throat. The virus is mainly transmitted through sexual intercourse. The most dangerous variants of this virus are HPV types 16, 18, 45 and 56 [7].

Women of childbearing age (WUS) span the age range of 15 to 45 years. At this age, females are in their productive period for reproduction, especially at the age of 20-35 years which is considered the most mature age to produce offspring. However, on the other hand, many women in this age group still lack knowledge about risk factors and prevention of cervical cancer [8]. The lack of education and understanding of the importance of early detection and preventive measures that can be taken makes most women at this age unaware of the risk of cervical cancer. Risky sexual behaviors, such as having frequent sex and with different partners, can increase the chance of cervical cancer. Therefore, providing proper education about this disease plays an important role in its prevention measures [9].

Meanwhile, the results of the Pap smear examination that had been carried out in the Bakamla RI personnel showed that of the 81 participants, there were 29 people (35.8%) with the result of inflammation (inflammation), while 52 people (64.2%) were within normal limits. This data indicates that there are still reproductive health problems among female personnel of Bakamla RI which can be related to the lack of understanding and proper vulvar hygiene practices. Although early detection efforts have been made through pap smears, interventions based on Health Education on Vulva Hygiene as a primary preventive measure for cervical cancer have not been optimally carried out.

Thus, there is still a knowledge gap regarding the extent to which Health Education on Vulva Hygiene can improve the understanding of Bakamla RI female personnel in the primary prevention of cervical cancer. Therefore, this study is important to assess the effectiveness of the level of knowledge of vulva hygiene health education about the primary prevention of cervical cancer for female personnel at the Indonesian Coast Guard, Jakarta. So that the

results can be used as a basis for the preparation of reproductive health programs in a similar work environment.

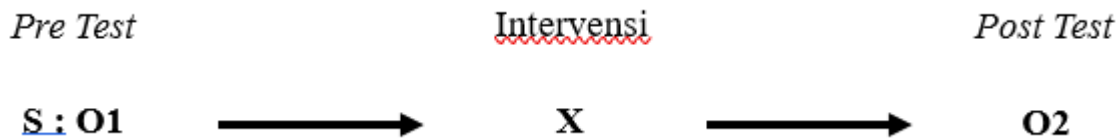
## METHODS

### Study design and setting

This study showed a statistically significant increase in knowledge about vulvar hygiene as a primary prevention of cervical cancer among female Bakamla RI personnel after health education

interventions. The effectiveness of the intervention was assessed using a pre-post test design and analyzed by Wilcoxon-marked rating test, which showed significant differences in knowledge scores before and after the intervention. These findings suggest that health education is an effective evidence-based approach to improving reproductive health knowledge and supporting cervical cancer prevention programs.:

Figure 1 Research Design



Description:

S : Subject

O1 : Pre-test (measurement of knowledge before intervention)

X : Intervention (Health Education on Vulva Hygiene: counseling + Leaflet + phantom media)

O2 : Post-Test (Measurement of knowledge after intervention)

### Population and Sample

The population in this study is 89 female Bakamla RI personnel who have undergone pap smear examination. The sample is 20 female Bakamla RI personnel who meet the inclusion criteria, Inclusion criteria:

- Female personnel are married (actively having sexual relations for approximately the last 1 year).
- No history of diseases in the reproductive organs.
- Female personnel who have never received Health Education on Vulva Hygiene.
- Female personnel who are willing to be respondents

### Instrument

In this study, the research instruments used include leaflet and phantom media as a means of health education, as well as knowledge questionnaires as a measuring tool. Before and after being given health education through leaflet and phantom media, the researcher distributed knowledge questionnaires to respondents in the form of pre-tests and post tests to measure the level of knowledge of respondents.

### Procedure

Before this study began, the researcher first asked for permission or an ethical test from the Ethics Committee of the Undergraduate Nursing

Study Program of STIKes Abdi Nusantara Jakarta and gave a permit to conduct preliminary study observations to the Head of the General Bureau of Bakamla RI. After the permit is received, the researcher holds a meeting to explain the purpose and duration of the research process.

The study protocol was approved by the Institutional Ethics Committee. Participants provided informed consent prior to enrollment. The research procedure included:

- Pretest : Knowledge of vulvar hygiene as a primary prevention of cervical cancer among respondents was assessed by distributing a structured questionnaire based on the research instrument. Participants were asked to read and complete the questionnaire independently, after which complete responses were collected and analyzed by the researchers..
- Intervention: prepare educational materials, then conduct educational interventions using leaflets and phantom, 10-15 minute.
- Posttest: participants completed the DMES again and submitted feedback regarding usability and effectiveness.

### Data analysis

Data were analyzed using SPSS version 26.0 (IBM Corp., Armonk, NY, USA). Descriptive statistics are used to describe the characteristics of

participants. This study used a quantitative quasi-experimental design with a pretest-posttest design of one group. The Wilcoxon marked rating test was used to analyze differences in knowledge scores

before and after health education interventions because data were not distributed normally.

**RESULTS AND DISCUSSION**

Table 1. Characteristics of Respondents by Age (n=20)

Karakteristik	Frekwensi	Presentase
	Umur	
25-30 tahun	13	65
31-35 tahun	6	30
36-40 tahun	1	5
	Status	
Menikah	20	100

Based on table 1, It can be explained that the majority of respondents are in the age group of 25-30 years, which is 65%. All respondents in this study

were married or sexually active women, as set out in the inclusion criteria of the study.

Table 2. Distribution of Frequency of Knowledge of Bakamla RI Women Personnel Before Being Given Health Education on Vulva Hygiene as Primary Prevention of Cervical Cancer for Female Personnel in the Indonesian Coast Guard (n=20)

Knowledge	Intervensi (Media Leaflet dan Phantom)		
Pre	Category	N	%
	Good	8	40,0%
	Not Good	12	60,0%
Post	Category	N	%
	Good	20	100%
	Not Good	-	-

Based on the results of the study, the level of knowledge of the respondents before and after being given Health Education interventions using leaflet and phantom media. Before the education (pre-test), most of the respondents had poor knowledge as many as 12 respondents (60.0%) with a correct

answer score of <12 (<75%), and good knowledge as many as 8 respondents (40.0%) with a correct answer score of ≥12 (≥75%). After education (post test), 20 respondents (100%) had good knowledge with a correct answer score of ≥12 (≥75%).

Table 3. The Effectiveness of Knowledge of Bakamla RI Women Personnel Before Being Given Health Education on Vulva Hygiene as a Primary Prevention of Cervical Cancer for Female Personnel in the Indonesian Coast Guard (n=20)

Uji Wilcoxon Rank Test	Result
Negative Ranks	0 <sup>a</sup>
Positive Ranks	20 <sup>b</sup>
Ties	0 <sup>c</sup>
P-Value	0.000

In the results of the statistical test, the Asymp value is known. Sig. (2-tailed) of 0.000, since the value is less than 0.05 it can be concluded that the Hypothesis is accepted. This means that there is a difference in the results of health education knowledge for pre test and post test. So it can be concluded that there is an influence of Health Education on Vulva Hygiene as Primary Prevention of Cervical Cancer on Female Personnel in the Indonesian Coast Guard.

**Discussion**

The characteristics of the respondents in this study include age and marital status who received education through leaflet and phantom media. This characteristic is important to analyze because it can affect the ability of respondents to grasp and understand the education provided. Based on the data described in table 5.1, Characteristics of Respondents by Age, it is known that the majority of respondents are in the age range of 25-30 years, which is as many as 13 people (65%). Furthermore, respondents aged 31–35 years amounted to 6 people

(30%), while respondents in the age group of 36–40 years were the least proportion, namely 1 person (5%). This distribution shows that most of the respondents are at productive and reproductive age.

All respondents in this study had married status (100%), which shows that the characteristics of the respondents were in accordance with the inclusion criteria of the study, namely women who were married or sexually active. The reproductive age group has greater risks and information needs related to reproductive health, including an understanding of Vulva Hygiene as a primary prevention of cervical cancer. The results of this study are in line with research conducted by [10] that most women of childbearing age before being given health education have poor knowledge about cervical cancer due to lack of access to correct information about cervical cancer, especially information through health education by health workers.

In the characteristics of knowledge in this study are analyzed to see the extent of understanding and behavior change after providing educational interventions. The level of knowledge of the respondents before and after being given Health Education interventions using leaflet and phantom media. Before the education (pre-test), most of the respondents had poor knowledge as many as 12 respondents (60.0%) with a correct answer score of  $<12$  ( $<75\%$ ), and good knowledge as many as 8 respondents (40.0%) with a correct answer score of  $\geq 12$  ( $\geq 75\%$ ). The results of this pre-test illustrate that before being given health education, some respondents did not optimally understand the basic concepts of Vulva Hygiene, including the function of the vulva, how to clean the genital area correctly, the use of safe materials, and behaviors that need to be avoided. This lack of understanding has the potential to increase the risk of health problems in the reproductive organs, including infections that can contribute to an increased risk of cervical cancer.

After education (post test), 20 respondents (100%) had good knowledge with a correct answer score of  $\geq 12$  ( $\geq 75\%$ ). The improvement and equitable distribution of knowledge in this post test is influenced by the effectiveness of the counseling methods used and the use of appropriate educational media, namely leaflet and phantom media. Leaflet media allows respondents to read and repeat information independently, while the

use of phantom provides a more concrete visual picture and learning experience, making it easier for respondents to understand the material presented.

The increase in the average value of knowledge after health education on Vulva Hygiene showed a positive influence of the intervention on the knowledge of female personnel of Bakamla RI. This result is strengthened by research conducted by [11], which revealed that the knowledge score before education of 22.5 increased to 57.5 after being educated using booklet media. Similar results were also found in a study conducted by [12], where there was an increase in the average knowledge score from 72.8 before education (pre-test) to 83.8 after education was given (post-test). This proves that print media in the form of booklets is able to make a real contribution in increasing respondents' understanding of cervical cancer prevention.

Based on the results of data analysis using the Wilcoxon Signed Rank Test statistical test, a value of  $p = 0.000 < \alpha = 0.05$  was obtained, which shows that there is a statistically significant difference between the level of knowledge of Bakamla RI female personnel before and after being given health education on Vulva Hygiene as a primary prevention of cervical cancer. These results confirm that the research hypothesis is accepted, namely that health education has an effect on increasing the level of knowledge of respondents.

The increase in respondents' knowledge can also be seen from the comparison of the average (mean) knowledge score, where the mean posttest score of 61.75 is higher than the pretest mean value of 97.25. The difference in average scores showed an increase in respondents' understanding after being given health education interventions. This indicates that the material presented can be well received and is able to add to the respondents' insight regarding the importance of implementing Vulva Hygiene as an effort to prevent primary cervical cancer. The results of this study are in line with the research conducted by [13] entitled The Effectiveness of Health Counseling with Power Point and Audio Visual Media on Increasing the Knowledge of Women of Childbearing Age About Cervical Cancer in the Work Area of the Bayongbong Health Center,

Garut Regency in 2023, stating that from 30 people, the average sample of WUS knowledge before being given health counseling with PPT media was 13.8 and after being given counseling with audio-visual video media by 18.20. The results of bivariate analysis showed a p-value of 0.000.

#### **Conflict of interest**

All authors declare no conflict of interest.

#### **Availability of data and materials**

A confidentiality agreement with participants prevents us from sharing the data, therefore, dataset cannot be shared.

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