

EFFECTIVENESS OF THE MODULE ON KNOWLEDGE AND MOTIVATION REGARDING PAP SMEAR EXAMINATION AMONG WOMEN OF REPRODUCTIVE AGE

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ABSTRACT

Background: Screening is central to global cervical cancer control; however, no district/city in East Java has yet reached the screening target. Participation in Pap smear screening is influenced by multiple determinants, particularly behavioral factors linked to women's knowledge and motivation; therefore, health education is expected to promote positive behavior change.

Methods: This study used a quasi-experimental, one-group pretest–posttest design in Lumajang Regency, East Java, Indonesia, conducted from August 2024 to January 2025. Purposive sampling recruited 63 women from a local community group. The intervention consisted of a structured educational module provided to all respondents. Knowledge and motivation were measured before and after the module using validated questionnaires.

Results: The statistical analysis applied to this research was the Wilcoxon signed-rank test for non-normally distributed variables, with $\alpha = 0.05$. Mean knowledge increased from 8.60 (min 5; max 10) at pretest to 9.57 (min 9; max 10) at posttest. Motivation to undergo Pap smear screening also improved, with mean scores increasing from 23.15 at pretest to 43.95 after the intervention. Shapiro–Wilk tests indicated non-normality for both knowledge and motivation ($p < 0.05$); thus, Wilcoxon tests were used. Significant differences were observed for knowledge ($p < 0.001$) and motivation ($p < 0.001$).

Conclusion: These findings suggest that module-based health education effectively strengthens women's knowledge and motivation to participate in Pap smear screening in settings where overall screening coverage remains below the target.

Keywords: knowledge, module, motivation, pap smear, woman

INTRODUCTION

Cervical cancer is one of the most common cancers among women, being the fourth most common after breast, colorectal, and lung cancers. *Global Cancer Statistics* (GLOBOCAN) in 2020 estimates that there are around 604,000 new cases of cervical cancer, with 342,000 deaths each year worldwide. The majority of new cases and deaths (about 85% and 90% respectively) occur in low- and middle-income countries (LMICs), which are the third most common cancers among women. Based on data from the *International Agency for Research on Cancer* released by the *World Health Organization* (WHO) in 2020, Indonesia is ranked third as the country with the highest number of new cervical cancer patients in the world, after India and China. (Bhatla et al., 2021; Sung et al., 2021). Cervical cancer in Indonesia was suffered by 348809 women in 2018, and the death rate reached 207210 cases in one year. This index is increasing because patients'

conditions are often already in a terminal stage when the diagnosis is made (Agustiansyah et al., 2021). According to the East Java provincial Health Office, in 2019, 13.078 cases of cervical cancer patients were reported (Mauludiyah et al., 2025). In 2021, the total number of cervical cancer screenings was 2340 within the 30-50 year age group, and based on those screenings, 22 people were found to be positive, whereas in 2019, the number was 0.6% (Titanicova et al., 2025).

Cervical cancer is a cancer caused by the human papillomavirus (HPV), which is actually easier to detect using a pap smear (Fowler et al., 2023). Screening is important because the risk of women not getting follow-up is more than 5 years after the appearance of the initial symptoms. There is a trend that emerges where women who do not get the HPV vaccine have a higher risk. (Fowler et al., 2023). Screening is an important strategy in the eradication of cervical cancer globally. Screening aims to detect common cervical precancerous lesions, such as high levels of CIN and adenocarcinoma in situ, early, and treat them effectively to prevent invasive cancer and lower cervical cancer mortality. Several cervical screening strategies have been used effectively in a variety of settings: conventional cytology (*Pap smear*); in recent years, *liquid-based cytology* (LBC) and HPV testing; and, in LMIC, *visual inspection with acetic acid* (VIA) (Bhatla et al., 2021).

Pap smears are an effective and widely available cervical cancer screening tool that involves examining the cytology of the cervix using Pap staining. *A Pap smear* is a simple cytopathological examination procedure that aims to detect changes in the morphology of cervical epithelial cells commonly seen in precancerous and cancerous conditions. Pap smear has a sensitivity of 84.2% and a specificity of 62.1%. Pap smears have been implemented as a population-based form of screening for several years in the United Kingdom (UK), the United States (US), Australia, and New Zealand, resulting in drastic reductions in cervical cancer incidence and mortality (Baharum et al., 2020; Bengtsson & Malm, 2014; Nwabichie Chinemerem Cecilia, Rosliza A.M, 2017). A Pap smear is the key to early cancer detection; if the results of the Pap smear are abnormal, further action can be taken. Pap smear is recommended to be done because it is easy, does not require surgery, and is easy to do as a way to detect lesions in gynecological patients (Sachan et al., 2018).

Mothers with children of more than 2, who have a history of using birth control pills for more than 10 years, are some of the factors associated with cervical cancer (Putri et al., 2019). All women who engage in sexual activity are susceptible to cervical cancer, even those who get married at a young age. Therefore, it is very important to immediately take early detection measures after having sexual intercourse. This examination is not a single event, but a routine procedure that must be carried out every year until the age of 70 (Tetelepta et al., 2021). Other risk factors are the mother's education, the location of the house, the mother's hygiene habits both after sexual intercourse, the age of the mother, who tends to be young when married, the number of wives from the husband, and the availability of health facilities are additional factors for the occurrence of cervical cancer (Kashyap et al., 2019). Until now, no district/city in East Java has reached the cervical screening target. In 2016, only two towns/districts met the 10% target in one year. Between 2015 and 2017, none of the Health Centers in Lumajang Regency met the cervical screening target (Nailufar, 2018).

The *mother's* participation in the Pap smear examination is influenced by several factors, including behavioral factors that are shaped by the mother's knowledge, intentions, and behavior. Women with good knowledge have a higher chance of having a Pap smear than women with poor knowledge. The results suggest that misconceptions (e.g., screening is necessary because there are no symptoms of cancer, early detection of cervical cancer is only for women with unsafe sexual behavior) can affect participation in

the early detection of cervical cancer. (Jumaida et al., 2020; Raidanti & Rina, 2022). Another factor related to maternal knowledge in the IVA test is the proximity of healthcare facilities to their home (Winarna et al., 2022). Uncomfortable procedure and lack of symptoms also become inhibiting factors in low participation in cervical cancer tests (Govardhan et al., 2024).

Increasing maternal knowledge can be done in various ways, one of which is by counseling about the Pap smear. (Anggraini, 2019). Health education is essential in encouraging behavior change and promoting healthier lifestyles. The foundation of effective health education lies in knowledge and understanding. It is recommended that tools or media be used to increase the effectiveness of health education. This visual aid serves as a representation that clarifies concepts that are not yet clear and facilitates a better understanding. Among various visual aids, videos, leaflets, booklets/modules are commonly used to deliver health education materials (Raidanti & Rina, 2022). Maternal knowledge can be increased by providing education, so it is hoped that women can detect cervical cancer early. (Udayani, 2019).

Previous researchers have used the community-based survey method to investigate cervical cancer and early detection. The results illustrate that low knowledge, socio-economic factors, and acculturative characteristics affect women's low participation in early detection (Pap smears). This can be due to the lack of health education about cervical cancer and pap smear examinations in the community. For that reason, this research aimed to find the motivation of WOMAN OF CHILDBEARING AGE in relation to pap smear and its relation to find the effectiveness of using a module to increase the motivation and knowledge of WOMAN OF CHILDBEARING AGE. Therefore, research on the module's effectiveness in increasing knowledge and motivation for the pap smear examination among women of childbearing age in Citrodwangsan Village, Lumajang Regency, is needed.

RESEARCH METHOD

The research design used is a quasi-experimental design through a pretest-posttest one-group approach. The study had a control group and an experimental group, but they were not randomly selected. This research was conducted in Lumajang Regency. This research was conducted from August 2024 to January 2025. The population of this study is all women of childbearing age who are members of the Lumajang Regency. The samples used in this study were drawn from all women of childbearing age living in Lumajang Regency who met the predetermined inclusion and exclusion criteria. The inclusion criteria in this study are 1) women of childbearing age who live permanently in Lumajang Village; 2) women of childbearing age are willing to be a research respondent by signing an informed consent; 3) women of childbearing age can read and write. Meanwhile, the exclusion criteria in this study are 1) women of childbearing age who do not live in Lumajang Village; 2) women of childbearing age who have physical and mental disabilities. The sampling technique used is purposive sampling. A total of 63 samples were obtained from people who met the inclusion and exclusion criteria. The pretest and posttest results from all respondents will be compared to assess changes in knowledge before and after the module's administration. This research received ethical approval with the number: 633/KEPK/UDS/I/2025.

The analysis used in this study uses quantitative methods. The questionnaire used in this research contained 10 questions with a Likert scale and has been validated. The Univariate analysis aims to describe the characteristics of the respondents, including age, number of children, marital status, education, and occupation, and present them descriptively in the form of a frequency distribution table. The purpose of descriptive

analysis is to find out the distribution of the frequency of answering questionnaires filled out by respondents and their tendencies. Bivariate analysis was used to analyze differences in knowledge about early detection of cervical cancer using pap smear examinations before and after treatment. Data analysis in this study used the paired t-test for normally distributed data and the Wilcoxon test for non-normally *distributed data*, with an *alpha value* of 0.05.

RESULTS

This research was conducted in Lumajang District, Lumajang Regency, in October and November 2024. A total of 63 members of the recitation community were willing to be respondents in this study. The characteristics of the respondents of this study are presented in Table 1. The table depicts the distribution of respondents by age, religion, education, occupation, marital status, number of children/parity, and whether or not they have had a *pap smear*.

Table 1. Distribution of Respondent Characteristics

Respondent Characteristic	Frequency	Percentage (%)
Age		
1. 20-27	6	9,5
2. 28-35	7	11,1
3. 36-43	24	38,1
4. 44-50	26	41,3
Religion		
1. Islam	63	100
2. Kristen/Katolik	0	0
3. Hindu	0	0
4. Budha	0	0
Education		
1. Elementary	1	1,6
2. Junior High	12	19
3. Senior High	42	66,7
4. Bachelor	8	12,7
5. Magister	0	0
Mother's Job		
1. Housewife	33	52,4
2. Farmer Helper	0	0
3. Farmer	0	0
4. Seller	11	17,5
5. Civil Servant	11	17,5
6. Police/Army	0	0
7. Entrepreneur	8	12,7
Marital Status		
1. Married	42	66,7
2. Widowed	21	33,3

Respondent Characteristic	Frequency	Percentage (%)
Parity		
1. 0	2	3,2
2. 1	10	15,9
3. 2	37	58,7
4. 3	7	11,1
5. >3	7	11,1
Pap Smear		
1. Yes	2	3,2
2. No	61	96,8
Total	63	100

Based on Table 1 above, it is known that the most women of childbearing age, in the age range of 44–50 years, are 26 people (41.3%), followed by 24 people (38.1%) in the age range of 36–43 years. All respondents (100%) are Muslim. Most respondents' education was High School (42 people, 66.7%), followed by Housewives (33 people, 52.4%). Traders and civil servants were the most common occupations, with 11 people each (17.5%). The respondents' marital status was as follows: 42 (66.7%) were married, and 21 (33.3%) were widowed. The respondent parity was dominated by two children, with 37 people (58.7%). Of all respondents, only two people (3.2%) had undergone a *Pap smear* examination.

Table 2. Respondents' Knowledge and Motivation in Pap Smear Examination After Module Delivery

Variable	Pretest average (minimal; maximal)	Post-test Average (minimal, maximal)
Knowledge	8,60 (5; 10)	9,57 (9; 10)
Motivation	23,15 (15; 41)	43,95 (15; 54)

After the module was delivered, there was a change in respondents' knowledge and motivation to conduct pap smear examinations. The results of the assessment, based on the knowledge questionnaire, showed that the respondents had an average pre-test score of 8.60, with a maximum score of 10 and a minimum score of 5. After exposure to the module, the average score on the respondents' knowledge questionnaire increased to 9.57, with a range of 9 to 10. The motivation of respondents to get a Pap smear has increased compared to before exposure, namely from an average pretest score of 23.15 to an average posttest score of 43.95.

Table 3. The Relationship between the Effectiveness of Module Administration on Increasing Knowledge and Motivation to Perform *Pap Smear Examinations*

Parameter	Pretest	Post-test	p-value
Knowledge	8,60	9,57	< 0.001
Motivation	23,15	43,95	< 0.001

After the normality test, it was found that neither of the data sets was normally distributed. Researchers use the Wilcoxon test for comparative analysis, and a p-value of

<0.001 is obtained, indicating that the data for the knowledge and motivation parameters have a significant difference.

DISCUSSION

Respondent characteristics by age showed that all respondents in this study fell within the productive age category (15-65 years) and were married. This is in accordance with (Fauziyah, 2021) This explains that one of the indications of a Pap smear examination is a woman of childbearing age who has been sexually active since she was young. Early detection with a Pap Smear is recommended to be routinely done at least once every 3 years. If women have a high risk of cervical cancer, early detection can be done for those younger than 30 years old or older than 50 years old. (Fauziyah, 2021). Women aged 21-60 are recommended to get a Pap smear to prevent cervical cancer. (Anita & Ismarwati, 2018).

Most respondents in this study have received sufficient education, specifically high school graduates/equivalent (66.70%) and S1/Diploma (12.70%). However, some respondents still have less education, namely elementary (1.60%) and junior high school (19%). This certainly affects respondents' level of knowledge and motivation regarding the Pap smear examination. As in previous research, it was stated that women of childbearing age who are highly knowledgeable and undergo a Pap smear examination, namely because the higher a person's education, the easier it is for them to receive information and the more knowledge they have. Meanwhile, those who are knowledgeable but do not have a Pap smear examination may lack access to a vehicle and have a house far from the health center, so their desire to have a Pap smear examination is not present. (Periselo et al., 2023). Education level affects a person's knowledge and attitudes toward the implementation of the Pap smear examination. (Satyarsa et al., 2019). Education is related to maternal knowledge of the pap smear; the higher the education, the higher the mother understands the pap smear (Handayani, 2016; Vivi Oktari, 2019).

All respondents' knowledge levels are relatively good (100%). Factors affecting this are the ease of accessing information through various media. A high level of knowledge is not always followed by motivation to perform a pap smear. As in this study, only 2 of the respondents were motivated to get a Pap smear. As many as 96.82% of respondents remain afraid and hesitant to undergo a Pap smear examination. Therefore, based on good awareness of early detection, Pap Smears have not sparked the interest of GOW members in efforts to promote early detection. The respondents' level of knowledge has been good, but this has not increased their interest in getting a Pap Smear, because the Pap Smear is an early detection activity that is preventive and does not have an immediate impact. A person's behavior in preventive measures to avoid illness is often not implemented, and becomes a priority only when they feel healthy. If a person feels healthy, indirect early-detection behaviors can be experienced as the benefits of avoiding disease, but it has not yet become the goal (Fauziyah, 2021). A change in a mother's attitude might change from unfavorable to favorable, after the mother gets education along with the cadre (Yanti et al., 2024). After receiving education on pap smears, mothers' motivation also increases significantly (Kustirah & Melina, 2020).

There is a need for intervention in the form of health promotion and counseling, including the provision of modules. Modules are considered adequate for improving knowledge because they allow the absorption of different information, as repeating the material learned takes time and helps it be remembered well. This is achieved by using learning media in health education, such as modules that can provide convenience in receiving health messages to the community. Modules that are read and understood well, accompanied by explanations, will give a person more information (Tetelepta et al.,

2021). Increase in maternal knowledge of pap smears, mostly in line with their attitude towards cervical cancer (Pratiwi & Omega Dr, 2024). Education can also be delivered by using audio-visual, which will give better visualization and facilitate the mother to absorb knowledge better (Artini et al., 2024)

The motivation in this study is intrinsic, coming from within. Intrinsic motivation is driven by self-pleasure. A person will do activities not because they want an award, but because they are happy to do them. The motivation in this study remains mostly low to medium for a Pap smear examination. This is shown in the number of respondents who have done a Pap smear, which is only 2. Based on previous research, there is a relationship between motivation and Pap smear screening in women of childbearing age. (Fauziyah, 2021). Mother's motivation mainly increases after they get education about cervical cancer. (Kustirah & Melina, 2020). Most women who have low motivation think they do not see the signs and symptoms. (Herniyati et al., 2023). However, by giving continuous education on cervical cancer, mothers will gain more motivation to prevent cervical cancer. (Latifah et al., 2020).

After the module was delivered, respondents were asked to review the module's content and to conduct a discussion session with the research team. The increase in respondents' knowledge and motivation after the module provision is described in detail in Table 7. Although respondents' knowledge of cervical cancer was relatively sound before the intervention, most respondents' understanding increased to perfect (answered correctly on all questionnaire questions).

These results indicate increased knowledge and motivation, as supported by the bivariate Wilcoxon test. This is in line with previous research by (Tetelepta et al., 2021). There is an increase in knowledge after providing treatment in modules. In addition, research conducted by (Raidanti & Rina, 2022) It also shows that women of childbearing age have increased knowledge of the Pap smear examination after exposure to the leaflet. The husband's support is another factor affecting a person's knowledge and motivation to do a pap smear. Husband's support gives the couple the power to exercise their reproductive rights in maintaining cervical health. (Fauziyah, 2021)

CONCLUSION

Based on the results of the research on the effectiveness of providing modules to Women of Childbearing Age in Citrodiwangsan Village, it can be concluded that the provision of the Pap Smear examination module significantly influences the knowledge and motivation of women of childbearing age in Citrodiwangsan Village related to the Pap Smear examination.

RECOMMENDATIONS

The recommendation for further research is to explore other driving factors for mothers undergoing a pap smear.

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