

Original Article

Factors related to pap smear test among female health workers based on the health belief model

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ABSTRACT

Introduction: A Pap smear test is crucial for cervical cancer. However, in Indonesia, the awareness of women to perform cervical screening is still low, including among female health workers. This study aimed to analyze the factors correlating with the Pap smear test among female health workers by using the Health Belief Model.

Methods: This study used a descriptive-analytic design with a cross-sectional approach. The population was 184 female health workers and the samples were 125 female health workers from the selected Public Health Centre (PHC) recruited using simple random sampling. The dependent variable was the Pap smear test while the independent variables were perceived susceptibility, perceived seriousness, perceived benefit, perceived barrier, cues to action, and self-efficacy. Data were collected by using a structured questionnaire and analyzed by using a chi-square test with a level significance of $\alpha \leq 0.05$.

Results: The results showed that the *P*-value for perceived susceptibility was 0.766, *P*-value=0.190 for perceived seriousness, *P*-value=0.027 for perceived benefits, *P*-value=0.007 for perceived barriers, *P*-value=0.033 for cues to action, and *P*-value=0.033 for self-efficacy.

Conclusion: Perceived susceptibility and perceived seriousness are not associated with Pap smear tests among female health workers in this study, whereas perceived benefit, perceived barrier, cues to action, and self-efficacy are associated with Pap smear tests among female health workers. It is expected to conduct research related to factors that influence perceived susceptibility and perceived seriousness in health workers to a Pap smear test.

Keywords: cervical cancer; female health workers; health belief model; pap smear; women's health

INTRODUCTION

Cervical cancer is a type of cancer that grows in the cervix and is suffered by many women worldwide (World Health Organization, 2024). The International Agency for Research in Cancer reported 36,964 new cases and 20,708 deaths caused by cervical cancer in 2022, resulting in cervical cancer being the third highest cause of cancer death in Indonesia (Ferlay et al., 2024). Indonesia introduced a National Action Plan for cervical cancer elimination in 2023, with the first pillar focusing on vaccination, screening, and management services (Tarmidzi, 2024). However, the implementation of cervical screening in Indonesia is still far away from the target; the screening coverage in Indonesia in 2023 was 7.02% while the target is 70% (Indarti, 2024).

Screening is very important in the management of cervical cancer because it can detect early precancerous lesion and affect the cure and prognosis (George, 2021). A Pap smear test has a sensitivity of 55% - 80% and specificity

of approximately 98% for detection of cervical dysplasia and invasive cancer (Bedell et al., 2020). The latest guidelines recommend women aged 21 years and sexually active should undertake a Pap smear test every three years (The American College of Obstetricians and Gynecologists, 2023). Health practitioners have an important role in raising the awareness of women to perform screening. However, study indicates that female health practitioners infrequently perform Pap smear tests. A study from Malaysia found that 55.7% of female health workers perform a Pap smear test once in their lifetime and only 33.5% of them had it done within the past three years according to the guideline. The prevalence surprisingly was significantly lower among those having higher educational level and higher monthly income. A busy schedule, the absence of any uncommon symptoms, shyness, and fear of discomfort are the main reasons for this (Saleh et al., 2021).

The phenomenon suggests that there is a need to investigate factors related to Pap smear tests, especially among female health workers who are supposed to have high knowledge and awareness. The Health Belief Model (HBM) can be used to analyze factors related to a Pap smear test. Factors in HBM, which includes perceived susceptibility, perceived seriousness, perceived barrier, cues to action, and self-efficacy, are the health behavior of a person based on perception and belief in the disease (Aldohaian, Alshammari and Arafah, 2019). This research aimed to investigate the correlation between factors in HBM with Pap smear tests among female health workers in Surabaya, Indonesia.

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METHODS

Study Design

This research used a descriptive correlational research design with a cross-sectional approach. The population in this research was all female health workers who work at PHC in Surabaya. Surabaya is divided into five working areas (western, eastern, northern, southern, and central Surabaya) with a total of 68 PHC units. The cluster sampling technique was used to select 12 PHC units to be used as the research location.

Participant

The population was 184 female health workers in 12 selected PHCs. From the population, exclusion criteria were applied which included unmarried female health workers, female health workers who have been affected by cervical cancer, and female health workers who have had a hysterectomy, so that the sample obtained in this study was 125 female health workers.

Variables

The independent variables in this study were perceived susceptibility to cervical cancer, perceived seriousness of cervical cancer, perceived benefits of Pap smear test, perceived barriers of Pap smear test, cues to the action of Pap smear test, and self-efficacy of the Pap smear test. The dependent variable in this research was a Pap smear test by a female health worker. The dependent variable obtained by asking the respondent a closed question "Have you ever done a Pap smear?" with a yes or no answer. Questionnaires were distributed directly to respondents after explanation and informed consent of the study.

Instruments

The instrument used to measure these variables was Likert scale questionnaires modified from the Health Belief Model Study of Cervical Cancer Screening among Saudi Women (Aldohaian, Alshammari and Arafah, 2019). The questionnaire was translated and modified, then ensured that the instruments were valid and reliable before being distributed to the respondents.

Ethical Consideration

This research has passed ethical study in the health research ethics committee of the Faculty of Nursing Universitas Airlangga with number 962-KEPK. After all the data were collected, they were then analyzed using inferential and descriptive analysis. The statistical test used the chi-square test with a significance level $\alpha \leq 0.05$. Descriptive analysis is used to interpret the statistical results obtained.

RESULTS

One hundred twenty five female health workers participated in this study. Table 1 shows the characteristics of respondents had age ranged from 21-60 years old. The majority of respondents were in the pre-menopause group, which has a high risk of cervical cancer. The respondents were mostly married ≥ 3 years (83.2%) and only 12% of respondents had not experienced labor. The majority of respondents had a high level of education, and their professions were medical doctors, dentists, nurses, dental nurses, health analysts, public health workers, medical record staff, pharmacists,

nutritionists, and midwives. Most respondents had health insurances but only 63.2% of respondents had ever performed Pap smear tests.

Table 2 shows that the majority of respondents felt not susceptible to cervical cancer or had low perceived susceptibility (37.6%); having fair perceived seriousness means they thought that cervical cancer is not a serious disease (46.4%). Most respondents had the opinion that the Pap smear test was beneficial (76.8%) and had low barriers to perform such test (79.2%). The majority of respondents had high cues to action (66.4%) and high self-efficacy (85.6%) to perform a Pap smear test. The correlational test using the chi-square test shows that only perceived benefit, perceived barrier, cues to action, and self-efficacy had significant correlations with Pap smear test performance among female health workers in this study.

DISCUSSION

The results of the study showed that more female health workers had ever had a Pap smear test, but those who not had a Pap smear were also numerous. Based on the analysis using HBM theory, several influencing factors were obtained, namely perceived benefits, perceived barriers, cues to action, and self-efficacy.

The result of the research shows that the majority of the respondents had low perceived susceptibility. Perceived susceptibility refers to an individual's assessment of the likelihood of the disease (Alyafei and Easton-Carr, 2024). The concept of the Health Belief Model explains that perceived susceptibility will cause the emergence of risk prevention behavior. The majority of respondents were worried about cervical cancer but they thought they did not have high risk of developing cervical cancer. This phenomenon may be due to their role as health workers, which might make them feel able to control their own health as long as they are not exposed to the various risks of cervical cancer. That they still participate in the Pap smear test despite low perceived susceptibility may be explained by their exposure to health programs, workplace policies, or required screenings as health workers. This is relevant with the research that found perceived susceptibility mediates the effect of the environment (Tafinger and Sattler, 2024).

The majority of respondents had moderate perceived seriousness. They agreed with the statement in the questionnaire that "I think cervical cancer scares me," but they disagreed with the statement that "cervical cancer is an incurable disease." This indicates that female health workers were afraid of cervical cancer but they consider cervical cancer as a disease that can be treated. Perceived seriousness is an individual assessment of the severity of the disease (Kussia et al., 2024). The perception of seriousness is often based on medical information or knowledge. Respondents in this study have the knowledge and ability to analyze the seriousness of the disease because of their profession as health workers. Thus, it leads to the perception of the seriousness of cervical cancer and then affects their behavior regarding Pap smear tests. This finding in line with study conducted in Malaysia which revealed that there is a significant correlation between knowledge level and prevalence of Pap smear among female health personnel (Saleh et al., 2021).

The results showed that there was a significant correlation between perceived benefits and Pap smear tests. The majority of respondents agree that a Pap smear test has many benefits to prevent cervical cancer. This was also relevant to their low perceived barriers regarding Pap smear which was indicated

Table 1. Characteristics of respondents (n=125)

Characteristics of respondents	n	%
Age		
21-30 years	32	25.6
31-40 years	57	45.6
41-50 years	16	12.8
51-60 years	20	16.0
Marriage		
< 3 years	21	16.8
≥ 3 years	104	83.2
Number of children		
0	15	12.0
1	40	32.0
2	45	36.0
≥3	25	20.0
Level of education		
Health Vocational High School	5	4.0
Nursing Diploma	65	52.0
Bachelor of Nursing	55	44.0
Profession		
Medical doctor	16	12.8
Dentist	11	8.8
Nurse	17	13.6
Dental nurse	6	4.8
Health analyst	7	5.6
Public health worker	16	12.8
Medical record staff	2	1.6
Pharmacist	9	7.2
Nutritionist	4	3.2
Midwife	37	29.6
Length of work		
1-10 years	64	51.2
11-20 years	35	28.0
21-30 years	14	11.2
31-40 years	12	9.6
Income		
< Rp 3.000.000,-	6	4.8
≥ Rp 3.000.000,-	119	95.2
Health insurance		
Yes	120	4.0
No	5	96.0
Pap smear test		
Yes	79	63.2
No	46	36.8

by their answers to the questionnaire that they were not shy to perform a Pap smear test, the Pap smear test was not painful, and it did not require much time. People are likely to adopt healthy behaviors when they have consideration of the advantages and disadvantages (Adegboyega et al., 2024). Anything that is considered beneficial will stimulate the action to adopt the behavior while anything that is considered as a threat will make people less likely to engage in the behavior.

There was a significant correlation between cues to action and Pap smear test among female health workers in this

research. Cues to action refer to something either internal or external that triggers someone to perform a specific behavior (Bandhu et al., 2024). It can be personal experience or influences from the environment that could increase the readiness, reduce procrastination, and reinforce decisions. As health workers, respondents in this study already had internal cues or knowledges about cervical cancer as well as external cues such as medical environmental supports and caring experiences of cervical cancer patients. This finding is supported by previous research that underscores the importance of cues to action

Table 2. The correlation of factors in health belief model with the pap smear test among female health workers in Surabaya (n=125)

Factors	Pap Smear Test		Total n (%)	P-value
	n (%)	n (%)		
Perceived Susceptibility				
High	29 (23.2)	14 (11.2)	43 (34.4)	0.766
Moderate	21 (16.8)	14 (11.2)	35 (28.0)	
Low	29 (23.2)	18 (14.4)	47 (37.6)	
Total	79 (63.2)	46 (36.8)	125 (100.0)	
Perceived Seriousness				
High	23 (18.4)	12 (9.6)	35 (28.0)	0.190
Moderate	40 (32.0)	18 (14.4)	58 (46.6)	
Low	16 (12.0)	16 (12.8)	32 (25.6)	
Total	79 (63.2)	46 (36.8)	125 (100)	
Perceived Benefit				
High	66 (52.8)	30 (24)	96 (76.8)	0.027
Moderate	13 (10.4)	16 (12.8)	29 (23.2)	
Total	79 (63.2)	46 (36.8)	125 (100.0)	
Perceived Barrier				
High	2 (1.6)	1 (0.8)	3 (2.4)	0.007
Moderate	8 (6.4)	15 (12)	23 (18.4)	
Low	69 (55.2)	30 (24)	99 (79.2)	
Total	79 (63.2)	46 (36.8)	125 (100.0)	
Cues to Action				
High	58 (46.4)	25 (20.0)	83 (66.4)	0.033
Moderate	21 (16.8)	21 (16.8)	42 (33.6)	
Total	79 (63.2)	46 (36.8)	125 (100.0)	
Self-Efficacy				
High	72 (57.0)	35 (28.0)	107 (85.6)	0.033
Moderate	7 (5.6)	11 (8.8)	18 (14.4)	
Total	79 (63.2)	46 (36.8)	125 (100)	

in driving self-initiated health prevention behavior among oncology nurses (Abu-Alhajja *et al.*, 2023).

The result of the research shows that the majority of health workers in Surabaya had a high self-efficacy (85.6%) and 52.8% of them had ever performed a Pap smear test at least once after being married. Self-efficacy is a person's belief in their ability to perform specific behavior (Waddington, 2023). Self-efficacy plays a crucial role in adopting specific behavior because it increase motivation and help to overcome barriers as well as maintenance of behavioral changes (Juwita *et al.*, 2023). This is in accordance with previous results that the majority of the respondents in this study also had high perceived benefits and low perceived barriers of Pap smear test. A person's behavior in accepting or rejecting an action is influenced by considerations of the benefits and barriers that may be encountered. Greater self-efficacy also has an impact on reducing perceived barriers and strengthening positive feelings toward the behavior. This has an impact on the commitment to maintain the behavior (Al-Ani *et al.*, 2024).

CONCLUSION

Perceived susceptibility and perceived seriousness were not correlated with a Pap smear test among female health workers whereas perceived benefit, perceived barrier, cues to action, and self-efficacy were correlated with Pap smear

tests among female health workers. Based on the findings, it is recommended to provide more campaigns through social media to increase awareness of cervical screening. Environmental support from the institution is also important by providing free screening for the employees in order to increase the behavior of cervical cancers screening.

Declaration of Interest

There are no conflicts of interest.

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Data Availability

The datasets generated during and/or analyzed during the current study are available from the corresponding author on reasonable request.

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