



**FACTORS RELATED TO HPV VACCINATION BEHAVIOR IN WOMEN OF REPRODUCTIVE AGE (WUS)**

**Endras Amirta Hanum<sup>1\*</sup>, Dewi Ari Sasanti<sup>1</sup>, Heni Elmiani Sari<sup>1</sup>, Pradea Wulandari<sup>2</sup>**

<sup>1</sup>DIII Midwifery Study Program, Politeknik Borneo Medistra, Jl. Tiga No.99, Gn. Samarinda, Balikpapan Utara, Balikpapan, Kalimantan Timur 76125, Indonesia

<sup>2</sup>DIV Health Information Management Study Program, Politeknik Borneo Medistra, Jl. Tiga No.99, Gn. Samarinda, Balikpapan Utara, Balikpapan, Kalimantan Timur 76125, Indonesia

\*[Endras@poltekborneomedistra.ac.id](mailto:Endras@poltekborneomedistra.ac.id)

**ABSTRACT**

Human Papilloma Virus (HPV) types 16 and 18 are the main causes of cervical cancer, which attack the cervix and lead to abnormal cell changes. One of the most effective preventive measures for cervical cancer is HPV vaccination. However, HPV vaccination coverage among women of reproductive age remains low and may be influenced by various behavioural factors. This study aimed to determine factors associated with HPV vaccination behaviour among women of reproductive age in Gunung Samarinda District in 2025. This study employed a quantitative approach with a cross-sectional design. Non-probability sampling was used, and the sample size was calculated using the Lemeshow formula, resulting in 30 respondents from a population of 1255 women of reproductive age. Data were collected using a structured questionnaire. The reliability results show that Cronbach's Alpha value > R Table, so that the six questions are reliable. Data analysis included univariate analysis and bivariate analysis using the Chi-square test. The results showed a significant association between knowledge ( $p = 0.010$ ) and media exposure ( $p = 0.031$ ) with HPV vaccination behaviour. Meanwhile, no significant association was found between education ( $p = 0.180$ ), occupation ( $p = 0.512$ ), income ( $p = 0.554$ ), and family support ( $p = 0.227$ ) with HPV vaccination behaviour. Knowledge and media exposure were significantly associated with HPV vaccination behaviour among women of reproductive age.

Keywords: cervical cancer; health promotion; human papillomavirus; reproductive age women; vaccination behaviour

**How to cite (in APA style)**

Hanum, E. A., Sasanti, D. A., Sari, H. E., & Wulandari, P. (2026). Factors Related to HPV Vaccination Behavior in Women of Reproductive Age (WUS). *Indonesian Journal of Global Health Research*, 8(1), 1171–1176. <https://doi.org/10.37287/ijghr.v8i1.1362>.

**INTRODUCTION**

Cervical cancer is one of the most common malignancies affecting women globally and remains a significant public health problem, particularly in low- and middle-income countries. According to the World Health Organization (WHO), cervical cancer is the fourth most common cancer among women worldwide, with an estimated 604,000 new cases and 342,000 deaths reported in 2020. Approximately 90% of cervical cancer deaths occur in developing countries, where access to preventive services such as screening and vaccination remains limited. Persistent infection with Human Papilloma Virus (HPV) has been identified as the primary cause of cervical cancer. Among more than 100 identified HPV types, high-risk HPV types 16 and 18 account for approximately 70% of cervical cancer cases worldwide. HPV infection is primarily transmitted through sexual contact, including genital-genital contact, oral-genital contact, and skin-to-skin contact in the genital area. Most HPV infections are asymptomatic and self-limiting; however, persistent infection with high-risk HPV types can lead to precancerous lesions and invasive cervical cancer. In Indonesia, cervical cancer is the second most common cancer among women after breast cancer. Data from the Global Cancer Observatory indicate that cervical cancer accounts for approximately 9.2% of all cancer cases among Indonesian women. The high burden of cervical cancer in Indonesia is associated with several factors, including limited awareness of cervical cancer prevention, low participation in screening programmes such as visual inspection with acetic acid (VIA) and Pap smear, as well as low uptake of HPV vaccination, especially among adult women.

HPV vaccination is a proven primary prevention strategy that effectively reduces the risk of HPV infection and subsequent cervical cancer. The Indonesian government has introduced HPV vaccination into the national immunisation programme through the School-Based Immunisation Programme (BIAS), targeting female students in grades 5 and 6 of primary school. While this programme represents significant progress in cervical cancer prevention, Women of Reproductive Age (Wanita Usia Subur/WUS), defined as women aged 15–49 years, are not included as the primary target of the free vaccination programme. As a result, many women in this age group must access HPV vaccination through private healthcare services, which often require out-of-pocket payment.

Women of Reproductive Age constitute a vulnerable population for HPV infection due to sexual activity and reproductive health factors. Despite being at risk, HPV vaccination coverage among WUS remains low. Behavioural factors play a crucial role in determining whether women decide to receive HPV vaccination. According to behavioural health theories, such as Lawrence Green's PRECEDE-PROCEED model, health behaviour is influenced by predisposing factors (knowledge, attitudes, education), enabling factors (access to services, media exposure), and reinforcing factors (family and social support). Previous studies have shown inconsistent findings regarding the determinants of HPV vaccination behaviour. Several studies reported that knowledge, educational level, occupation, income, media exposure, and family support significantly influence HPV vaccination uptake. However, other studies found no significant association between socio-demographic factors and vaccination behaviour. These inconsistencies highlight the need for context-specific research to understand factors influencing HPV vaccination behaviour among WUS.

Gunung Samarinda District in 2025, located in Balikpapan, is an urban area with a high population density and diverse socio-economic characteristics. In 2025, the total number of Women of Reproductive Age Gunung Samarinda District in 2025. reached 1255 individuals. Although HPV vaccination for school-aged girls has been implemented in this area, there is limited information regarding HPV vaccination behaviour among adult women. Therefore, this study aimed to analyse factors associated with HPV vaccination behaviour among Women of Reproductive Age in Gunung Samarinda District in 2025, focusing on knowledge, education, occupation, income, media exposure, and family support.

## **METHOD**

This study employed a quantitative research approach with a cross-sectional design. The research was conducted in Gunung Samarinda District in 2025. The study population comprised all Women of Reproductive Age residing in the Gunung Samarinda District, totalling 1255 individuals. The sampling technique used was non-probability sampling. Sample size determination was calculated using the Lemeshow formula, resulting in a total sample of 30 respondents. Data were collected using a structured questionnaire that had been tested for validity and reliability prior to data collection. The variables studied included HPV vaccination behaviour as the dependent variable, and independent variables consisting of knowledge, educational level, occupation, income, family support, and media exposure. Data analysis was conducted using univariate analysis to describe respondent characteristics and bivariate analysis using the Chi-square test to examine the association between independent variables and HPV vaccination behaviour. Statistical significance was determined at a p-value < 0.05.

## **RESULT**

### **HPV Vaccination Behavior**

The results of this study are presented in the form of univariate and bivariate analyses. Univariate analysis describes the distribution of respondent characteristics and research variables, while bivariate analysis explains the relationship between independent variables and HPV vaccination behavior. The results of the calculations show that the majority of the 106 women of childbearing

age, 26(86.8%), had poor HPV vaccination practices, while 4 (13.2%) had good practices. This study also correlates with a study conducted by Annas (2022) on working women in Depok, which found that 121 women (96%) had not received the HPV vaccination, while 5 (4%) had. Based on the results, researchers found that HPV vaccination behavior was influenced by knowledge (P value = 0.010) and media exposure (P value = 0.032). It appears that higher knowledge leads to better behavior in taking cervical cancer prevention measures.

Table 1.

Frequency Distribution Based on HPV Vaccination Behavior in Women of Childbearing Age (n= 30)

Perilaku Vaksinasi HPV	f	%
Baik	26	13.2
Kurang Baik	4	86.8

### Relationship between Education and HPV Vaccination Behavior

The results showed that the majority of women of childbearing age had a higher education, 24 (76.4%). Bivariate analysis revealed that poor HPV vaccination behavior was predominantly among women of childbearing age with low education, 28 (96%), with a P-value of 0.180, indicating no significant relationship between education and HPV vaccination behavior. This study aligns with research conducted by Niar and Nur (2017), which found no significant relationship between education and HPV vaccination behavior (P-value = 0.488). Based on the results of this study, the researchers assumed that all levels of education can have positive or negative attitudes toward HPV vaccination. This is related to advances in Science and Technology (IPTEK), where people with both low and high education have the right and freedom to seek knowledge that can support behavioral change. Furthermore, predisposing factors such as knowledge can be acquired beyond formal education, so women of childbearing age can develop positive attitudes from outside sources. Therefore, HPV vaccination behavior is not related to education level.

Table 2.

Distribution of Respondents Based on Education in Women of Childbearing Age

Pendidikan	n	%
Rendah	6	23.6
Tinggi	24	76.4

### Relationship between Work and HPV Vaccination Behavior

The results showed that the majority of women of childbearing age, 24 (76.4%), were employed. Bivariate analysis revealed that poor HPV vaccination practices were predominantly among unemployed women of childbearing age, 27 (92%), and a P-value of 0.511 was obtained, indicating no significant association between employment and HPV vaccination practices among women of childbearing age in the in Gunung Samarinda District in 2025. This study aligns with research conducted by Niar and Nur (2017), which found no significant association between employment and HPV vaccination practices (P-value = 0.393).

Based on the results of this study, the researchers assumed that employment status may be unrelated to HPV vaccination practices because it allows women of childbearing age to engage in work that is irrelevant to their health, especially regarding cervical cancer. Although health is a private matter, irrelevant work can lead to indifference and disregard for other issues besides their work. Women of childbearing age, both employed and unemployed, have an equal opportunity to receive HPV vaccination. However, employment status is associated with income and HPV vaccination for students other than fifth and sixth graders, so a high income allows women of childbearing age to receive HPV vaccination as early as possible. However, this does not rule out the possibility that low-income or unemployed women of childbearing age may not receive HPV vaccination, as some women of childbearing age receive HPV vaccination support from family or other sources.

Tabel 3.

Distribution of Respondents Based on Occupation of Women of Childbearing

Pekerjaan	n	%
Tidak Bekerja	6	23.6
Bekerja	24	76.4

**Relationship between Income and HPV Vaccination Behavior**

The results showed that the majority of women of childbearing age had incomes below the Balikpapan Provincial Minimum Wage (UMP), namely 19 (65.1%). Bivariate analysis revealed that poor HPV vaccination behavior was dominated by women of childbearing age with incomes below the Balikpapan Provincial Minimum Wage (UMP), namely 26 (88.4%). A P-value of 0.554 was obtained, indicating no significant relationship between income and HPV vaccination behavior among women of childbearing age in the Gunung Samarinda sub-district in 2025. This study is related to research conducted by Anita et al. (2019) that found no significant relationship between income and HPV vaccination behavior. This is likely due to other factors that are more important and, according to respondents, more beneficial than HPV vaccination.

Based on the results, the researchers assume that women of childbearing age with incomes below the Balikpapan Provincial Minimum Wage (UMP) engage in poor behavior because each individual has different priorities. The Central Statistics Agency (2022) noted that the average household consumption in Balikpapan reached 14 million rupiah, making women of childbearing age in Balikpapan prioritize primary needs over having to pay for the relatively expensive HPV vaccine. Furthermore, the lack of a significant relationship between income and HPV vaccination behavior occurred because in this study, there were 8 women of childbearing age who had received the HPV vaccination with incomes below the Balikpapan minimum wage. Furthermore, researchers assumed that women of childbearing age could have a positive attitude towards HPV vaccination by being willing to pay for the HPV vaccine or by providing the HPV vaccine as an opportunity at certain institutions. Therefore, it is not always the case that women of childbearing age with high or low incomes can influence someone's behavior.

Tabel 4.

Distribution of Respondents Based on Income of Women of Childbearing Age

Pendapatan	f	%
< UMP Balikpapan	19	65.1
> UMP Balikpapan	11	34.9

**Relationship between Knowledge and HPV Vaccination Behavior**

The results showed that women of childbearing age had similar levels of knowledge, with 15 (50%) having low knowledge and 15 (50%) having high knowledge. Bivariate analysis showed that poor HPV vaccination behavior was dominated by the group of women of childbearing age with low knowledge, namely 28 (96.2%), with a P-value of 0.010, indicating a significant relationship between knowledge and HPV vaccination behavior among women of childbearing age in the Gunung Samarinda sub-district in 2025. Another study conducted by Winarti (2020) showed that knowledge was the most dominant factor related to HPV vaccination behavior, with a P-value of 0.000. Furthermore, research by Sukma et al. (2018) found a significant relationship between knowledge and HPV vaccination behavior, with a P-value of 0.024. Knowledge is a crucial aspect in shaping a person's behavior; therefore, behavior acceptance is easier if it is based on good knowledge (Notoatmodjo, 2018).

**Relationship between Media Exposure and HPV Vaccination Behavior**

The results showed that 19 women of childbearing age (66%) were exposed to media. Bivariate analysis revealed that poor HPV vaccination behavior was dominated by the fertile women group, with 24 women (81.7%) not exposed to media exposure. A P-value of 0.032 was obtained, indicating a significant relationship between media exposure and HPV vaccination behavior among

fertile women in the Gunung Samarinda-district in 2025. This study's results are related to research conducted by Abdul et al. (2016) that found a significant relationship between media exposure and HPV vaccination behavior, with a P-value of 0.000.

Media exposure is related to information sources that can influence the interest and behavior of fertile women in HPV vaccination (Sulistiyawati, 2018). In addition, various digital platforms have begun promoting cervical cancer prevention through HPV vaccination, as mandated by the Ministry of Health, which mandates mandatory HPV vaccination for fifth- and sixth-grade schoolchildren in Indonesia by 2022 (Ministry of Health, 2022). Although the program is only available to schoolchildren, women of childbearing age are becoming more aware of the potential for cervical cancer prevention through HPV vaccination.

### **Relationship between Family Support and HPV Vaccination Behavior**

The results of the study indicate that 19 women of childbearing age (66%) had unsupportive family support. Bivariate analysis revealed that poor HPV vaccination behavior was dominated by women of childbearing age with unsupportive family support, representing 27 women (90%). A P-value of 0.227 was obtained, indicating no significant relationship between family support and HPV vaccination behavior among women of childbearing age in the Gunung Samarinda -district in 2023. This study aligns with research conducted by Niar and Nur (2017), which found no significant relationship between family support and HPV vaccination behavior (P-value = 0.063).

Based on the results, the researchers assume that there is no significant relationship between family support and HPV vaccination behavior because other, stronger sources of support can influence a person's behavior. Although family support is an important factor in healthy behavior, matters related to reproductive organs, such as the cervix, remain taboo, making women of childbearing age reluctant to discuss them with their families. Peer support can be a factor that strengthens HPV vaccination behavior. Research conducted by Annisa and Hari (2023) showed that peers have a significant influence in exchanging information about vaccination, which can influence their friends' vaccination behavior (Shah et al., 2021).

### **DISCUSSION**

The findings of this study indicate that knowledge plays a significant role in influencing HPV vaccination behaviour among Women of Reproductive Age. Respondents with better knowledge about HPV and cervical cancer prevention were more likely to receive HPV vaccination. This result is consistent with behavioural health theories stating that adequate knowledge is a prerequisite for positive health behaviour change. Media exposure was also found to have a significant association with HPV vaccination behaviour. Access to health information through mass media and digital platforms may increase awareness and shape positive attitudes towards vaccination. Health promotion messages delivered through appropriate media channels can therefore enhance public acceptance of HPV vaccination. In contrast, educational level, occupation, income, and family support were not significantly related to HPV vaccination behaviour. These findings suggest that although socio-economic factors may influence health behaviour, they do not directly determine HPV vaccination uptake without sufficient knowledge and information exposure. This highlights the importance of targeted health education interventions rather than relying solely on socio-demographic characteristics.

### **CONCLUSION**

This study concludes that knowledge and media exposure are significantly associated with HPV vaccination behaviour among Women of Reproductive Age in Gunung Samarinda District. Educational level, occupation, income, and family support were not found to have a significant relationship with HPV vaccination behaviour. It is recommended that Women of Reproductive Age improve their knowledge regarding cervical cancer and HPV vaccination as an effort to prevent cervical cancer at an early stage. Health institutions in Gunung Samarinda District are also encouraged to strengthen health promotion programmes related to HPV vaccination, collaborate

with sexually transmitted infection (STI) and maternal and child health (MCH) services at community health centres, and propose HPV vaccine subsidy programmes for economically disadvantaged women.

## REFERENCES

- Bruni, L., Albero, G., Serrano, B., Mena, M., Gómez, D., Muñoz, J., & Bosch, F. X. (2021). Human papillomavirus and related diseases report. ICO/IARC Information Centre on HPV and Cancer.
- Cunningham, F. G., Leveno, K. J., Bloom, S. L., Dashe, J. S., Hoffman, B. L., Casey, B. M., & Spong, C. Y. (2022). *Williams obstetrics* (26th ed.). McGraw-Hill Education.
- Lowe, N. K. (2022). The nature of labour pain. *American Journal of Obstetrics and Gynecology*, 226(2), S1–S10.
- World Health Organization. (2022). Human papillomavirus (HPV) and cervical cancer. WHO.
- Aulia, D. L. N., & Neno, Y. (2019). Pengetahuan, sikap, dan motivasi pekerja seks komersial terhadap keikutsertaan pemeriksaan IVA. *Jurnal Kebidanan Malahayati*, 5(4), 349–356.
- Dewi, P. I. S., Purnami, L. A., & Heri, M. (2021). Sikap remaja putri tentang kanker serviks dengan motivasi melakukan vaksinasi HPV. *Jurnal Keperawatan Silampari*, 5(1), 51–58.
- Hamal, D. K., & Juliana, F. (2022). Faktor-faktor yang berhubungan dengan kejadian dismenorea primer pada remaja putri di SMK Farmasi Bhumihusada Jakarta tahun 2021. *Media Publikasi Promosi Kesehatan Indonesia (MPPKI)*, 5(7), 865–869.
- Idris, I. M., Angka, R. N., Christina, S., & Sumbayak, E. M. (2021). Aktivitas seksual usia dini dan paritas tinggi meningkatkan risiko kanker serviks. *Jurnal Kedokteran Meditek*, 27(3), 306–316.
- Khabibah, U., Adyani, K., & Rahmawati, A. (2022). Faktor risiko kanker serviks: Literature review. *Faletehan Health Journal*, 9(3), 270–277.
- Kholifatullah, A. I., & Notobroto, H. B. (2023). Hubungan dukungan sosial dengan niat imunisasi human papilloma virus sebagai pencegahan kanker serviks. *Jurnal Kesehatan Tambusai*, 4(3), 3699–3707
- Kuntari, S., Widiyanto, A., Arradini, D., Ernawati, E., Handayani, R. T., & Atmojo, J. T. (2021). Pengetahuan dan perilaku masyarakat terhadap human papilloma virus dan vaksin HPV. *Jurnal Keperawatan Jiwa*, 9(2), 311–322.
- Kusumawati, Y., Nugrahaningtyas, R. W., & Rahmawati, E. N. (2016). Pengetahuan, deteksi dini, dan vaksinasi HPV sebagai faktor pencegah kanker serviks di Kabupaten Sukoharjo. *KEMAS: Jurnal Kesehatan Masyarakat*, 11(2), 204–213.
- Nasution, H. F. (2016). Instrumen penelitian dan urgensinya dalam penelitian kuantitatif. *Al-Masharif: Jurnal Ilmu Ekonomi dan Keislaman*, 4(1), 59–75.
- Nindrea, R. D. (2017). Prevalensi dan faktor yang mempengaruhi lesi pra kanker serviks pada wanita. *Jurnal Endurance*, 2(1), 53–61.
- Nursalam. (2013). *Metodologi penelitian ilmu keperawatan: Pendekatan praktis*. Salemba Medika.
- Panwar, K., Godi, A., Cocuzza, C. E., Andrews, N., Southern, J., Turner, P., & Beddows, S. (2022). Binding antibody levels to vaccine and non-vaccine HPV antigens up to 7 years following immunization. *Vaccine*, 40(9), 1198–1202.
- Rahmadini, A. F., Kusmiati, M., & Sunarti, S. (2022). Faktor-faktor yang berhubungan dengan perilaku remaja terhadap pencegahan kanker serviks melalui vaksinasi HPV. *Jurnal Formil Kesmas Respati*, 7(3), 317–325.
- Sugiyono. (2015). *Metode penelitian kuantitatif, kualitatif, dan R&D*. Alfabeta.
- Sulistiya, D. P., Pramono, D., & Nurdiati, D. (2017). Faktor-faktor yang berhubungan dengan kejadian kanker serviks di rumah sakit Sardjito Yogyakarta. *Berita Kedokteran Masyarakat*, 33(3), 125-130.