

THE RELATIONSHIP BETWEEN SOCIAL MEDIA EXPOSURE AND'S EDUCATION REGARDING GIVING *HUMAN PAPILLOMA VIRUS* IMMUNIZATION

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ABSTRACT

Cervical cancer remains one of the leading causes of death in women worldwide, largely due to persistent Human Papilloma Virus (HPV) infection. HPV immunization is a primary prevention measure proven effective in reducing the risk of cervical cancer in school-age girls. HPV immunization coverage is influenced by various factors, including exposure to information through social media and maternal education level. This study aims to analyze the relationship between social media exposure and maternal education with HPV immunization in girls. This study used a quantitative method with an observational analytical design and a cross-sectional approach. The study population consisted of all 87 mothers with fifth and sixth grade daughters at SD IT Luqman Al Hakim 02, with a sampling technique using total sampling. Data were collected through questionnaires and analyzed using the Chi-Square test at a 95% confidence level ($\alpha = 0.05$). The results showed that 59.8% of mothers were exposed to social media, most respondents had a secondary education, and 73.6% of girls had received HPV immunization. Statistical analysis showed a significant relationship between social media exposure and HPV immunization ($p=0.001$), as well as between maternal education and HPV immunization ($p=0.003$). Therefore, optimizing health education through social media and outreach activities needs to be continuously carried out to improve mothers' understanding of HPV immunization. various levels of education and support increased coverage of HPV immunization.

Keywords: social media exposure; maternal education ; HPV immunization; cervical cancer; prevention

ABSTRAK

Kanker serviks masih menjadi salah satu penyebab utama kematian pada perempuan di seluruh dunia yang sebagian besar disebabkan oleh infeksi persisten Human Papilloma Virus (HPV). Imunisasi HPV merupakan salah satu langkah pencegahan primer yang terbukti efektif dalam mengurangi risiko terjadinya kanker serviks pada anak perempuan usia sekolah. Cakupan pemberian imunisasi HPV dipengaruhi oleh berbagai faktor, termasuk keterpaparan informasi melalui media sosial dan tingkat pendidikan ibu. Penelitian ini bertujuan untuk menganalisis hubungan antara keterpaparan media sosial dan pendidikan ibu dengan pemberian imunisasi HPV pada anak perempuan. Penelitian ini menggunakan metode kuantitatif dengan desain analitik observasional dan pendekatan cross-sectional. Populasi penelitian terdiri atas seluruh ibu yang memiliki anak perempuan kelas V dan VI di SD IT Luqman Al Hakim 02 sebanyak 87 orang, dengan teknik pengambilan sampel menggunakan total sampling. Data dikumpulkan melalui kuesioner dan dianalisis menggunakan uji Chi-Square pada tingkat kepercayaan 95% ($\alpha=0,05$). Hasil penelitian menunjukkan bahwa 59,8% ibu terpapar media sosial, sebagian besar responden memiliki tingkat pendidikan menengah, dan 73,6% anak perempuan telah menerima imunisasi HPV. Analisis statistik menunjukkan adanya hubungan yang bermakna antara keterpaparan media sosial dengan pemberian imunisasi HPV ($p=0,001$), serta antara pendidikan ibu dengan pemberian imunisasi HPV ($p=0,003$). Oleh karena itu, optimalisasi edukasi kesehatan melalui media sosial dan

kegiatan penyuluhan perlu terus dilakukan untuk meningkatkan pemahaman ibu dari berbagai tingkat pendidikan serta mendukung peningkatan cakupan imunisasi HPV.

Kata Kunci: Keterpaparan Media Sosial; Pendidikan Ibu; Imunisasi HPV; Kanker Serviks; Pencegahan

INTRODUCTION

Cervical cancer remains a serious public health problem worldwide. The World Health Organization (WHO) reports that in 2022, there were approximately 660,000 new cases of cervical cancer and more than 350,000 deaths from the disease. Most cases occur in low- and middle-income countries due to limited access to prevention, screening, and treatment services. Persistent human papillomavirus (HPV) infection, particularly high-risk types HPV 16 and 18, is known to be the primary cause of more than 99% of cervical cancer cases.

In an effort to eliminate cervical cancer, the WHO has established a global 90-70-90 strategy: 90% of girls receive the full HPV vaccine before age 15, 70% of girls undergo screening, and 90% of women with precancerous lesions or cervical cancer receive adequate treatment. HPV vaccination is a highly effective primary prevention strategy because it prevents HPV infection before someone is exposed to the virus through sexual activity.

In Indonesia, cervical cancer ranks second as the most common cancer in women after breast cancer. The Indonesian government began integrating HPV immunization into the National Immunization Program through the School Children's Immunization Month (BIAS) in 2023, targeting fifth and sixth grade elementary school girls or equivalent. However, national HPV immunization coverage has yet to reach the WHO elimination target. The Indonesian Ministry of Health reports that national HPV immunization coverage has only reached approximately 55% of the total target.

In Batam City, according to 2024 data from the Batam City Health Office, of the 22,966 targeted girls, 17,288 (75.5%) had received the HPV immunization. However, immunization coverage is not evenly distributed across all community health centers (Puskesmas) coverage areas. The Tanjung Uncang Community Health Center (UPTD) had one of the lowest HPV immunization coverage areas, with only 375 children (43.65%) of the total target of 856 children receiving the HPV immunization.

A mother's decision to vaccinate her child against HPV is influenced by various factors. One factor that has rapidly increased in the digital age is exposure to information through social media. Social media has become a source of health information that is easily accessible to the public through various platforms such as WhatsApp, Instagram, Facebook, TikTok, and YouTube. Accurate information can increase vaccine acceptance, while inaccurate information can raise concerns about immunization.

Health information obtained through social media can influence public health knowledge, attitudes, and behaviors. Social media has the potential to raise public awareness of the importance of vaccination if the information comes from credible sources and is based on scientific evidence. Conversely, the spread of inaccurate information or hoaxes can increase public skepticism about vaccines and decrease immunization acceptance. Social media has a strong influence on public perceptions of vaccination, which can impact a person's decision to accept or reject a vaccine (Wilson & Wiysonge, 2020).

Exposure to information about the HPV vaccine through social media has been shown to be associated with increased interest in and acceptance of vaccination. Research conducted by Lin et al. (2019) showed that individuals who received information about HPV through various media were more likely to accept the HPV vaccine compared to those who were not exposed to such information. These results suggest that adequate access to information can increase public understanding of the benefits of HPV vaccination as a cervical cancer prevention measure (Lin et al., 2019).

In addition to social media exposure, maternal education is a factor that can influence health

behaviors and decision-making regarding child immunization. Education is a learning process aimed at developing a person's cognitive, affective, and psychomotor abilities, enabling them to understand, process, and utilize information acquired in everyday life. A person's level of education will influence their way of thinking, ability to accept new information, and ability to make choices related to family health (Notoatmodjo, 2021).

According to Notoatmodjo (2021), education is a predisposing factor that influences the formation of a person's health behavior. Individuals with higher levels of education generally have better abilities to obtain, understand, and evaluate health information, making them more receptive to innovations and health programs recommended by healthcare professionals. Conversely, individuals with lower levels of education tend to have limited access to and understanding of health information, which can influence their health behaviors (Notoatmodjo, 2021).

Based on Law of the Republic of Indonesia Number 20 of 2003 concerning the National Education System, formal education levels consist of primary education, secondary education, and higher education. Primary education includes Elementary School (SD) and Junior High School (SMP), secondary education includes Senior High School (SMA), Vocational High School (SMK), or equivalent, while higher education includes Diploma, Bachelor's, Master's, and Doctoral degrees. In health research, education level is often used as an indicator to assess a person's ability to receive and understand health information received (Ministry of Education, 2023).

Education is a social determinant of health that significantly influences the health status of individuals and families. A person's level of education can influence their ability to access health information, understand health messages, and make informed decisions regarding disease prevention. The higher a person's education, the greater their likelihood of developing good knowledge and awareness of the importance of maintaining their own and their family's health (Marmot et al., 2021).

According to Green's Precede-Proceed theory, education is a predisposing factor that influences the formation of health behaviors. Predisposing factors are factors originating from within the individual, such as education, knowledge, beliefs, values, and attitudes, that can motivate someone to undertake or not undertake a health action. Therefore, a higher level of education can increase a person's likelihood of accepting health programs, including immunizations (Green & Kreuter, 2015). Education is also closely related to health literacy. Health literacy is a person's ability to obtain, understand, evaluate, and use health information to make informed decisions. Mothers with higher levels of education generally have better health literacy, making them better able to understand the benefits, safety, and effectiveness of the HPV vaccine than mothers with lower levels of education (Nutbeam, 2021).

In today's digital age, information about vaccinations is readily available through various sources, including healthcare professionals, mass media, and social media. However, the ability to sort and understand this information is often influenced by educational attainment. Mothers with higher levels of education tend to be more critical in assessing the veracity of health information, making them better able to distinguish evidence-based information from hoaxes or misleading information (Nutbeam, 2021).

A mother's education level plays a crucial role in determining decisions regarding her child's health, including HPV immunization. Mothers with higher education tend to have better health literacy, making it easier to understand the benefits of immunization, the risks of preventable diseases, and the importance of following government-recommended immunization programs. Conversely, mothers with lower education are at risk of having a limited understanding of health information, making them more susceptible to inaccurate or misinformation about vaccination (WHO, 2024).

In the context of HPV immunization, maternal education plays a role in increasing acceptance of vaccination as a cervical cancer prevention measure. Higher education enables mothers to better understand the relationship between Human Papillomavirus (HPV) infection and cervical cancer, the

effectiveness of the HPV vaccine, the vaccination schedule, and the safety of the vaccine recommended by the World Health Organization. This understanding can increase mothers' trust in the HPV immunization program and encourage their willingness to vaccinate their daughters (Widjaja et al., 2020).

Several studies have shown that maternal education is associated with HPV immunization acceptance. Research by Wantini and Indrayani (2020) found that parents with higher levels of education were more likely to receive HPV vaccination compared to parents with lower levels of education. These results suggest that educational attainment plays a role in shaping positive perceptions of the benefits of vaccination and increasing parental willingness to provide HPV immunization to their children (Wantini & Indrayani, 2020).

Research conducted by Ylitalo et al. (2019) showed that parental education level was associated with increased acceptance of the HPV vaccine in girls. Parents with higher education were more likely to consent to HPV immunization because they better understood the vaccine's benefits in preventing cervical cancer. These findings suggest that education is an important factor to consider in efforts to increase HPV immunization coverage.

A mother's education also contributes to her ability to communicate and interact with healthcare professionals. Mothers with higher levels of education are generally more active in asking questions, seeking explanations about the benefits and side effects of vaccines, and following health advice given by healthcare professionals. Good interactions between mothers and healthcare professionals can increase trust in the immunization program, thus influencing the decision to administer the HPV vaccine to children (Widjaja et al., 2020).

Higher education is generally associated with increased access to health information sources and quality health services. Mothers with higher levels of education tend to be more active in seeking information about children's health, discussing it with health professionals, and participating in government-organized health programs. Conversely, mothers with lower levels of education often face limitations in understanding complex health information, necessitating a simpler and more accessible educational approach. This situation suggests that maternal education is a crucial factor in efforts to increase HPV immunization coverage and support the success of cervical cancer prevention programs for girls (WHO, 2024; Nutbeam, 2021).

In today's era of information technology advancement, maternal education and social media exposure are two interrelated factors influencing health behaviors. While social media provides a wealth of easily accessible information about HPV immunization, the ability to understand and evaluate this information is significantly influenced by educational attainment. Therefore, the combination of social media exposure and maternal education is an important aspect to examine to determine its influence on decisions about HPV immunization for girls.

Previous research at SD IT Luqman Al Hakim 02 only examined the relationship between social media exposure and HPV immunization. To date, no research has simultaneously analyzed the relationship between social media exposure and maternal education on HPV immunization for girls at the school. Therefore, this study was conducted to determine the relationship between social media exposure and maternal education on HPV immunization for girls at SD IT Luqman Al Hakim 02, within the working area of the UPTD Tanjung Uncang Community Health Center, Batam City, in 2025.

RESEARCH METHODS

This research is a quantitative observational analytical design using a cross-sectional approach. The study was conducted at SD IT Luqman Al Hakim 02, within the working area of the Tanjung Uncang Community Health Center (UPTD), Batam City, from July to August 2025. The population in this study was all mothers who had daughters in grades V and VI of SD IT Luqman Al Hakim

02, totaling 87 people. The sampling technique used total sampling, so that the entire population was used as the research sample. Inclusion criteria included mothers with daughters in grades V and VI, willing to be research respondents, able to read and write, and present when the research was conducted. Exclusion criteria included The exclusion criteria in this study were mothers who were unwilling to be respondents, were not present during data collection, withdrew during the research process, or did not complete the questionnaire completely so that the data could not be analyzed.

The independent variables in this study were social media exposure and maternal education, while the dependent variable was the administration of Human Papilloma Virus (HPV) immunization to girls. Data collection was conducted using a questionnaire that had been tested for validity and reliability. The social media exposure questionnaire consisted of questions regarding the frequency of obtaining information about HPV through social media, the type of social media used, and the intensity of information access. Maternal education was obtained through a questionnaire identifying respondents based on their most recent completed formal education level and categorized into primary education (elementary/junior high school/equivalent), secondary education (senior high school/vocational high school/equivalent), and higher education (diploma/bachelor's/postgraduate). Data on HPV immunization were obtained based on the immunization status of girls reported by respondents.

Data analysis was carried out univariately to determine the frequency distribution of each variable and bivariate analysis using the Chi-Square test with a significance level of $\alpha = 0.05$ and a confidence level of 95%. This research has obtained ethical approval from the Health Research Ethics Committee of the Mitra Bunda Health Institute with number 011/K/KEP/IKMB/VII/2025.

RESULTS AND DISCUSSION

Table 1. Distribution of Respondents Based on Exposure to HPV Immunization Information Through Social Media

Social Media Exposure	Frequency (n)	Percentage (%)
Exposed	52	59.8
Not exposed	35	40.2
Total	87	100.0

Table 2. Distribution of Respondents Based on Mother's Education Level

Level of education	Frequency (n)	Percentage (%)
Basic education	13	15.0
Secondary education	53	60.9
Higher education	21	24.1
Total	87	100.0

Based on the results of a study of 87 respondents, it was found that the majority of mothers had been exposed to information about HPV immunization through social media. Fifty-two respondents (59.8%) stated that they had received information about HPV immunization through various social media platforms such as WhatsApp, Instagram, Facebook, TikTok, and YouTube. Meanwhile, 35 respondents (40.2%) stated that they had never or rarely received information about HPV immunization through social media. These findings indicate that social media has become a source

of health information widely used by mothers to obtain information regarding cervical cancer prevention through HPV vaccination.

The results showed that the majority of respondents had a secondary education. Of the 87 respondents, 53 (60.9%) had a secondary education, 21 (24.1%) had a tertiary education, and 13 (15.0%) had a primary education. The high proportion of mothers with a secondary education indicates that most respondents had completed high school (SMA/SMK) or its equivalent. Education level is a factor that can influence a person's ability to receive, understand, and process health information, including information about HPV immunization.

Table 3
Distribution of HPV Immunization for Girls

HPV Immunization Status	Frequency (n)	Percentage (%)
Have been immunized	64	73.6
Not immunized	23	26.4
Total	87	100.0

Based on the study results, 64 girls (73.6%) had received the HPV immunization, while 23 girls (26.4%) had not. The high rate of HPV immunization indicates a good level of acceptance of the immunization program. However, some mothers still do not give their consent for their children to be immunized, so it is necessary to identify the factors influencing this decision.

The analysis results showed that of the 52 mothers exposed to social media, 49 (94.2%) gave HPV immunization to their children, while only 3 (5.8%) did not. Conversely, in the group of mothers not exposed to social media, only 15 (42.9%) gave HPV immunization, while 20 (57.1%) did not. The Chi-Square test results showed a p value = 0.001 ($p < 0.05$), so it can be concluded that there is a significant relationship between social media exposure and HPV immunization in girls.

These findings indicate that mothers who receive information about HPV immunization through social media are more likely to accept and be more willing to vaccinate their children than mothers who are not exposed to such information. Information obtained through social media can increase mothers' understanding and awareness of the benefits of HPV immunization as a cervical cancer prevention measure.

The results showed that mothers with higher levels of education were more likely to provide HPV immunization to their children compared to mothers with lower levels of education. The chi-square test showed a p-value of 0.003 ($p < 0.05$), indicating a significant association between maternal education and HPV immunization.

These results indicate that the higher the mother's education level, the more likely she is to be willing to provide her child with HPV immunization. Higher education enables mothers to better acquire, understand, and evaluate health information, enabling them to make more informed decisions regarding immunization. This finding aligns with Notoatmodjo's (2021) theory, which states that education is a factor influencing a person's health behavior, and research by Wantini and Indrayani (2020), which found that parents with higher levels of education tend to have better acceptance of HPV vaccination.

The results of the Chi-Square test showed a p value of 0.003 ($p < 0.05$), which means there is a significant relationship between maternal knowledge and the provision of HPV immunization. These results indicate that the higher the education a mother has regarding HPV immunization, the more likely the mother is to be willing to provide immunization to her child.

CONCLUSION

There is a significant relationship between social media exposure and the provision of Human Papilloma Virus (HPV) immunization to girls at SD IT Luqman Al Hakim 02, Working Area of UPTD Tanjung Uncang Health Center, Batam City in 2025. In addition, there is a significant relationship between maternal education and the provision of HPV immunization. Improving education through social media supported by ongoing health education is necessary to increase the understanding of mothers from various educational levels and increase HPV immunization coverage as an effort to prevent cervical cancer from an early age.

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