



A CORRELATION STUDY OF FAMILY SUPPORT AND ADOLESCENTS' MOTIVATION IN PARTICIPATING THE HPV VACCINATION

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ABSTRACT

The information on the significance of family support in relation to the adolescent motivation to participate in Human Papilloma Virus (HPV) vaccination, remains limited. This study aimed to investigate the correlation between family support and adolescents' HPV vaccination motivation. This study was quantitative with a cross-sectional correlational design and proportionate stratified random sampling approach. 271 students from two state junior high schools in the capital city of Indonesia participated in this study. The instruments were family support and motivational on HPV

vaccination questionnaires. Univariate analysis to measure family support was first applied, then bivariate analysis using the Spearman Rank test. The study found that 52% of female students had support from their families at a moderate level, 48.7% of students exhibited a high level of motivation, while 51.3% had a moderate-low motivation to participate in HPV vaccination. According to bivariate analysis, there is a correlation between family support and adolescent motivation with a p -value of <0.05 (0.001) and coefficient of 0.486. The results show there to be a positive correlation; the higher the level of family support, the better the motivation of young women to undergo HPV vaccination. However, the number of students with a low motivation for HPV vaccination remains high. The government should develop an innovative program with a more comprehensive target to increase the HPV vaccination rate in Indonesia.

Keywords: Adolescent; family; health behavior; human papilloma virus

ABSTRAK

Informasi tentang pentingnya dukungan keluarga dalam kaitannya dengan motivasi remaja untuk berpartisipasi dalam vaksinasi Human Papilloma Virus (HPV), masih terbatas. Penelitian ini bertujuan untuk menganalisa hubungan antara dukungan keluarga dan motivasi vaksinasi HPV remaja. Penelitian ini adalah penelitian kuantitatif yang bersifat korelasional dengan desain cross sectional dan pendekatan proportionate stratified random sampling. Responden adalah 271 siswa dari dua Sekolah Menengah Pertama Negeri di ibu kota Indonesia. Instrumen yang digunakan adalah kuesioner dukungan keluarga dan motivasi vaksinasi HPV. Analisis univariat dilakukan untuk mengukur dukungan keluarga dan motivasi, kemudian korelasi di uji menggunakan uji Spearman Rank. Hasil menunjukkan 52% siswa perempuan mendapat dukungan dari keluarga pada tingkat sedang, 48,7% siswa menunjukkan tingkat motivasi yang tinggi, sementara 51,3% memiliki motivasi sedang-rendah untuk berpartisipasi dalam vaksinasi HPV, dan ada korelasi antara dukungan keluarga dan motivasi remaja dengan nilai $p < 0,05$ (0,001) dan koefisien 0,486. Hal tersebut menunjukkan ada korelasi positif; semakin tinggi tingkat dukungan keluarga, semakin baik motivasi remaja putri untuk menjalani vaksinasi HPV. Disisi lain, jumlah siswa dengan motivasi rendah untuk vaksinasi HPV masih tinggi. Pemerintah diharapkan mengembangkan program inovatif dengan target dan efek yang lebih komprehensif untuk meningkatkan cakupan vaksinasi HPV di Indonesia.

Kata kunci: Remaja; keluarga; perilaku Kesehatan; human papilloma virus

INTRODUCTION

Gynecologic cancers, including cervical cancer, remain a global and national leading morbidity and mortality among women. In 2020, According to estimates, there were 604,000 new cases of cervical cancer worldwide and 342,000 deaths, and it can seriously threaten of women's lives (Wang et al., 2021; World Health Organization, 2018). In 2018, there were 569,000 new cervical cancer cases worldwide and 311,000 deaths (Hull et al., 2020). In Indonesia, cervical cancer cases over the past 5 years are 92,930 people with an incidence of death of 21,000 cases which means around 350 women of productive age experience mortality every month (The Global Cancer Observatory, 2021). Human Papilloma Virus (HPV) vaccination can prevent cervical cancer, as this virus is found in 96% of cervical cancer patients, while 83% are types 16 and 18 of HPV (Wirtz et al., 2022). The utilization of the HPV vaccine presents a possible method to decrease the occurrence of the high morbidity and mortality rates associated with HPV infection (Tabibi et al., 2022).

In preventing cervical cancer, the HPV vaccine has a reasonably high effectiveness, reaching more than 90% (American Cancer Society, 2019). The HPV vaccine is a prophylactic vaccine, which will work if given before the virus infects the individual. It is more effective at preventing cervical cancer when the vaccine is given before sex in adolescence (Ikatan Dokter Anak Indonesia [Indonesian Pediatric Association], 2017). The WHO data shows that only 67 out of 194 young women have had a vaccine against HPV (World Health Organization, 2018). HPV vaccination coverage in developing countries remains low, including Indonesia. There is no data published regarding the coverage of HPV vaccination nationally. The coverage of HPV vaccine data is provided in two provinces, Jakarta and Bali, as not all provinces in Indonesia have implemented a HPV vaccination program as

immunization for children (Kemenkes RI [Health Ministry of Indonesia], 2022). The low coverage of vaccination can be caused by several factors such as the lack of information about the HPV vaccine, fear of vaccine side effects, wrong perceptions, family support and motivation, and HPV vaccination has not yet become a regular program (Beyen et al., 2022; Wilson et al., 2016).

The family support factor is essential for maintaining adolescent health. The family has a role in educating and guiding adolescents to have appropriate health behavior (Mackova et al., 2022). Family support dramatically affects their children's health (Sigurdardottir et al., 2017). In addition, a study on family support in relation to the children's consumption of blood-booster tablets showed that family support influences the children's intention to carry out a behavior. The HPV vaccine administration program would run well if teenagers were strongly motivated to participate, paired with parental guidelines. *Motivation* is defined as a drive or a need that guides a person to act (Thu et al., 2015). According to the study from Vrinten, et al. (2022), the motivations related to health management were divided into four categories: affective needs, cognitive needs, personal identity, and social integrative needs. Research conducted at Mulia Hospital found that 45,5% of employees had a low motivation to have the HPV vaccination (Herawati et al., 2018). A study showed that parents support can increase adolescents motivation to maintain their physical health (Moral-García et al., 2020). Hence, there was a limited number of study that assessed and correlated between the parents' support and adolescents' motivation to participate in the HPV vaccination. It is necessary to engage in a study that examines the relationship between them.

The Indonesian government has established a program to expand the coverage of the HPV vaccine by issuing a decree from the Minister of Health Number HK.01.07/MENKES/6779/2021. However, there are still some obstacles to its implementation, such as resistance from parents and students who feel that there is no benefit to getting the vaccine (Zheng et al., 2021). As part of the professional health services, the role of nurses includes educating adolescents on their health by collaborating with teachers and school staff through school health nursing programs (Holmes et al., 2016). In addition, nurses help to develop health promotion actions by providing health education related to cervical cancer prevention, including vaccination against HPV, to increase the female students' knowledge (Lin et al., 2022). This is expected to improve their motivation. Nurses also can educate their parents about the beneficence of HPV vaccination for adolescents and the importance of their support in motivating the students to participate in the HPV vaccination program (Johnson-Mallard et al., 2012). However, the assessment of both aspects could be improved. This research aims to analyse the correlation between family support and the teenage girls' motivation to receive HPV vaccine.

METHOD

Participant characteristics and research design

The research was designed as a cross-section correlational study and was carried out to examine the relationship between support of family and the motivation of adolescent to participate in HPV vaccination. This design allowed for the exploration of the association, strength, and direction of the correlations among the variables in a real-world context (Cresswell, 2013). The data was collected from two different junior high schools located in Jakarta, Indonesia.

Sampling procedures

This study employed a proportionate stratified random sampling technique to recruit participants who met specific criteria related to the research objectives. The inclusion criteria included active female junior high school students located in Jakarta who were in years 7 and 8. The exclusion criteria were no longer being students, who were in year 9 of their study, and who had no guardian. Informed consent is an essential part that provide clear information about the risk and benefit of this study. Each respondent has the right to choose whether to participate in research or not. The research protocol was reviewed and approved by ethics committee before the data collection commenced. The

study adhered to the principles of research integrity, participant confidentiality and data protection. This research received ethical approval from the Research Ethics Committee.

Sample size, power, and precision

Slovin's formula was chosen to ensure an adequate number to detect meaningful correlations within the study's scope. The required sample was 271 participants from both schools. The respondents were divided into two groups: group 1 vaccinated (N=122), and group 2 unvaccinated (149). This is because this study sought to observe the family support and motivation of each group. This study applied two questionnaires and sociodemographic questions to measure the variables. The sociodemographic questions looked at age, year of school, original school, and living status.

The research team modified the family support instrument related to the HPV vaccine from Yeni et al. (2016), while also using Friedman's theory (Friedman, 2013). The questionnaire consisted of 20 positive statements with four components of support: informational, emotional, appraisal, and instrumental. Informational support included the aspects of advice, provision of information, suggestions and instructions. In emotional support, the aspects were emotional assistance such as love, warmth and the attention given by the family to young women. Award support consisted of awarding and approval, while instrumental support provides valuable services such as transportation and vaccination costs. The family support questionnaire was used after obtaining permission from the previous questionnaire developer via email, then it was slightly modified according to the research objectives.

If the respondent answered "always", they were given a score of 4; if the respondent answered "often", they were given a score of 3; if the respondent answered "sometimes", they were given a score of 2; and if the respondent answered "never," they were given a score of 1. A pilot study was conducted involving 30 female students at public junior high school 47 in Central Jakarta and then the family support questionnaire validity was confirmed to have an r -value of > 0.361 and a Cronbach's alpha value of 0.922. The range of family support scores is divided into three categories, including high-level of family support (61-100), moderate-level of family support (41-60), and low-level of family support (0-40).

The students' motivation to carry out Human Papilloma Virus (HPV) vaccination was measured using Mukhoirotin and Effendi's questionnaire (2018) which consisted of 20 statements. The questionnaire was divided into two sources of motivation, intrinsic and extrinsic motivation. The element of intrinsic motivation consisted of several aspects such as their physical and mental condition, age maturity, self-need and level of knowledge. Extrinsic motivation consisted of the environmental aspect, social support and the media. The questionnaire was used after obtaining permission from the previous questionnaire developer via email. The scale used in the motivational questionnaire was the Guttman scale: "Yes" or "No" answers, following the respondents' opinion to describe their condition. For the favorable statements, if the answer was "Yes", the score was 1. If the answer was "No", the score was 0. For unfavorable statements, if the answer was "Yes", the score was 0. If the answer was "No", the score was 1. The motivation for the questionnaire was declared to be valid for each item with an r value of >0.4438 and a Cronbach's alpha value of 0.973. The range of motivational level scores is divided into three categories, including high-level motivation (14-20), moderate-level of motivation (8-13), and low-level of motivation (0-7).

Measures and covariates

The researchers collected data from May to June 2022. The data collection facilitators were teachers from both schools. The data collection step started with the researcher submitting a permit application to the principal. The school suggested that the study respondents would be female students in years VII and VII, as the student year X had graduated from the junior high school in June. The survey was administered electronically via an online survey platform and the participants were provided with clear instructions for completing the questionnaire, as well as the study's title, objectives, and

eligibility criteria while assuring the participants of the confidentiality of their information. This was as well as their right to withdraw from the research up until the point of data completion, the low-risk nature of the study, and the researcher's contact information.

Data analysis

Univariate analysis was used to determine the proportion of the research variables including family support level, the types of family support for each group, and the adolescent motivation to participate in HPV vaccination. In addition, bivariate analysis was used to assess the relationship between family support and the adolescent motivation to vaccinate against HPV. or <0.05 , so the non-parametric statistical test used was the Spearman Rank correlation test. The Spearman Rank test was applied because the test data normality (Kolmogorov-Smirnov test) showed that the distribution of the data was not normally distributed with a p-value of <0.05 . The test was used to decide whether there was a relationship between the ordinal variables. The significance level (α) was 5% or 0.05. A p-value of <0.05 means that H_0 is rejected and H_a (alternative hypothesis) is accepted. Whereas, if the p-value is ≥ 0.05 , H_0 is accepted, which means that both variables have no correlation.

RESULTS AND DISCUSSION

Results

The findings present the respondents' characteristics, the level of family support and motivation, the category of family support, the level of adolescent motivation, the types of motivation, and the correlation between family support and the adolescents' motivation to participate in HPV vaccination.

Characteristics of the Participants

More than half of the participants (n=156, 57.6%) came from 1st Public Junior High School, and 115 (42.4%) from 2nd Public Junior High School. All of the participants lived with their parents and family; none of them lived alone. Most were unvaccinated (n=149, 55%), while the rest were vaccinated (n=122, 45%). The details are provided in Table 1.

Table 1
Characteristics of the Respondents

Characteristic	Frequency	Percentage
School		
1 st Public Junior High School	115	42.4
2 nd Public Junior High School	156	57.6
Years		
7	131	48.3
8	140	51.7
Ages		
12	8	3.0
13	103	38.0
14	120	44.2
15	40	14.8
Residential		
Parents/Family	271	100.0
Alone	0	0.0
Vaccination Status		
Vaccinated (Group 1)	122	45.0
Unvaccinated (Group 2)	149	55.0
Total	271	100.0

The Category of Family Support

The data analysis found that the highest mean value in both groups was for the component of emotional support (15.8), while the lowest was for informational support (9.4). In Group 2, the mean of information support was the lowest (8.2). Group 1 had a higher mean across all family support components than Group 2. The details can be seen in Table 2.

Table 2
The types of family support to adolescent about the HPV vaccination (n=271)

Vaccine Status		informational	Emotional	appraisal	instrumental
Group 1	Mean	10.8	14.6	15.6	16.5
	N	122	122	122	122
Group 2	Mean	8.2	12.6	14.2	15.3
	N	149	149	149	149
Total	Mean	9.4	13.5	14.9	15.8
	N	271	271	271	271

Family Support related to HPV Vaccination

The descriptive statistics analysis of family support level suggests that the majority of respondents received a moderate level of support from their families (52.0%). The results also showed that there were low levels of family support for their adolescents to participate in HPV vaccination (n=45, 16.6%). This indicates that the family support received by the adolescents varies (Table 3).

Table 3
The Level of Family Support related to the HPV Vaccine Program

Category	Frequency	Percentage
High Family Support	85	31.4
Moderate Family Support	141	52.0
Low Family Support	45	16.6
Total	271	100.0

Adolescent Motivation to Participate in the HPV Vaccination

Table 4 displays the level of adolescent motivation categorized into high, moderate, and low levels. Less than half of the respondents had a high motivation level (48.7%) to participate in HPV vaccination. However, not all of them were vaccinated. Additionally, more than half of the respondents (51,3%) had a moderate-low motivation level where improving their motivation would be useful to increase the target vaccine coverage.

Table 4
The Level of Adolescent Motivation to Participate in the HPV Vaccination

Category	Frequency	Percentage
High Motivation	132	48.7
Moderate Motivation	112	41.3
Low Motivation	27	10.0
Total	271	100.0

Correlation between Family Support and the Adolescents' Motivation

The results in Table 5 indicate a positive correlation between family support and the adolescents' motivation to participate in HPV vaccination. The correlation coefficient was 0.486 with a p-value < 0.001; p < 0.05. Ha is accepted. The mean correlation coefficient was in the moderate category with

a positive value. The higher the level of family support, the better the motivation of the respondents to undergo HPV vaccination. However, there were respondents with a low level of support from their family and they also had a low motivation.

Table 5
Correlation between Family Support and the Adolescents' Motivation to Participate in HPV Vaccination

Family Support	Motivation						P-value	Correlation coefficient
	High		Moderate		Low			
	n	%	n	%	n	%		
High	76	28	7	2.6	2	0.7		
Moderate	42	15.5	85	31.4	14	5.2	< 0.001	0.486
Low	14	5.2	20	7.4	11	4.1		

Discussion

Family Support of the Adolescent's HPV Vaccine Program

The study findings indicate that the support level of the sampled families varies. Most of them are at a moderate level, while there were also families with both high and low levels of support. These results align with the previous research highlighting that most women obtain support from their families (76%) to participate in HPV vaccination (Sari & Syahrul, 2014). Family support is one of the essential factors encouraging a person's healthy behavior (Fiks et al., 2013; Savitry et al., 2017). Students with a HPV vaccine status had a higher average (mean) than those who were unvaccinated. Strong family support will increase HPV vaccination participation by 6.86 times compared to low family support. Families or parents need to be involved to facilitate adolescents in accessing the HPV vaccine, because adolescents are minors and are still the responsibility of their parents (Gottvall et al., 2013). It can be concluded that the family or parents' active engagement in their children's health behavior is paramount.

Parents are typically responsible for their children's healthcare decisions. Therefore, family consent is a critical step in the HPV vaccination of adolescents. Parents are part of the family and have an essential role, especially for adolescents aged 9–15 years, related to the HPV vaccination decision (Wang et al., 2022). Sopian et al. (2018) also found that parent's acceptance toward HPV vaccination in their daughter was 63%. It can show that adolescents on decision-making related to health problems still depends on their parents (Aarthun et al., 2019). So, the adequate knowledge of parents about the importance of HPV vaccination is essential to their decision to enroll their daughter in the HPV vaccination program (Wang et al., 2022). However, in the health behavior context, family consent is not limited to their permission but also encompasses parental understanding and acceptance of the HPV vaccine. In other words, the knowledges, beliefs, and attitudes of the family about the vaccine and their children's immunization impacts their consent regarding the HPV vaccine and would also impact to their consent and the subsequent coverage of HPV vaccination (Kolek et al., 2022).

This study found that 16.6% of adolescents felt a low level of parental support regarding HPV vaccination. Previous studies have found that several factors influence parental health behavior. For example, children from small families receive more attention than those from prominent families. In addition, other factors were socioeconomic level, employment status, and education level (Friedman, 2013). Cultural background can also influence an individual's beliefs, values, and habits in relation to providing health support (Maed et al., 2013; Nadirawati, 2019). Research conducted in China, revealed that parents who have daughters have better knowledge of HPV vaccination. If parents have good knowledge and awareness, it will positively influence the intention to participate in HPV vaccination (Zhou et al., 2019). Additionally, Borena, et al. (2016) research on parents showed that

the higher the level of parental education, the higher the willingness among their daughters to vaccinate against HPV. Therefore, a health education program for parents is needed to improve their knowledge, awareness, and commitment to supporting their children and ensuring that their children receive complete vaccination packages to obtain maximum protection from any sexually-transmitted disease. This includes supporting their childrens' motivation.

Adolescent Motivation to Participate in the HPV Vaccine Program

The findings of this study show that most of the participants had high levels of motivation to undergo HPV vaccination. This study's results align with the research conducted by Runiari et al. (2015), which found that almost all respondents had a high motivation (98.31%). This is also consistent with the results of research from Pennella et al. (2020), which stated that adolescents have a positive attitude towards HPV vaccination. In addition, another study showed that 54.5% of Sari Mulia Hospital employees had positive motivations for implementing the HPV vaccine. The respondents from the hospital participated in the counselling about HPV vaccination that was carried out at Sari Mulia Hospital, therefore they understood the importance of HPV vaccination (Herawati et al., 2018). Previous research states that the level of motivation was also high but the characteristics of the respondents were different, namely adult female employees, whereas in this study, the respondents were teenagers who still needed a high level of family support.

Regarding the filling out of the questionnaire regarding motivation, several question items had the highest scores, namely those about the respondents' motivation to take the HPV vaccine to avoid cervical disease and have a robust immune system. This finding aligns with Maslow's theory of needs which argues that human needs can be a motivator composed of a hierarchy (Hayre-Kwan et al., 2021). One of the second levels of Maslow's theory is the need for disease protection, including wanting to be protected from physical and emotional harm. The need for protection from health problems such as cervical cancer drives the realization of HPV vaccination behavior. In the research by Swari et al. (2014), knowledge has a significant positive correlation with the motivation to vaccinate against HPV and cervical cancer. Adequate knowledge of HPV can increase acceptance of HPV vaccination (Kitur et al., 2022). This means that the primary prevention of cervical cancer can be done by providing health education that can motivate an individual to have the HPV vaccine.

The participants' motivation may also be formed from conducive environmental factors, family support, especially their parents, as well as their emotions, finances, TV, social media and radio (Uno, 2023). The environment has a strong influence on motivation. For example, when in school, young women who see that their friends have had the HPV vaccine will be significantly influenced to themselves participate. In addition, sources of information and recommendations from health workers are no less influential for young women in carrying out HPV vaccination (Ramanadhan et al., 2020). The more knowledge that is gained about cervical cancer or the HPV vaccine, the greater the motivation to get the vaccine.

The Correlation Between Family Support and the Adolescents' Motivation

The findings of this study show that most participants had high levels, showing a positive correlation between family support and the motivation to undergo HPV vaccination among young women. The positive correlation of this study illustrates that the higher the family support, the higher the motivation to have the HPV vaccine and vice versa. The lower the family support, the lower the motivation. The correlation between family support and motivation has also been proven in Utami et al. (2015) research that there is a correlation between family support and motivation (Utami et al., 2015). These results align with the research about cancer cases in adolescents patients, which states that the better the family support provided, the better the adolescents' adherence to carrying out chemotherapy (Carr & Rosengarten, 2021).

Family support plays a role in influencing the formation of interests and motivations (Friedman, 2013). In addition, family support can provide emotional comfort. Family members are considered to be supportive people who are always ready to help and assist if needed. Positive family support will certainly cause a strong motivation to carry out an activity, including participating in the HPV vaccine. The higher a person's knowledge, the easier it will be for them to receive information and to provide a rational response (Pustikasari, 2019; UIHaq et al., 2012). Additionally, the higher the awareness that arises from within to take an active role in directing all efforts to achieve their goals and expectations, in this case, the participation of young women in having the HPV vaccine (Runiari et al., 2015).

The family support obtained by young women contributed 23.6% to the motivation to have the HPV vaccine and was included in the moderate category. The study findings show the need for increased family support so then the motivation of young women can also increase. Inui et al. (2022) research shows a meaningful correlation between family support and motivation. Support in the form of information can be provided by the family, advice, solutions, and information about adolescent health obtained from health workers. The family members' education or knowledge level also influences the information support provided. This finding follows the research result that states that the mother and father's education level impacts the HPV knowledge of high school students (Tang et al., 2014). Therefore, parental education in the secondary education category benefits the ability to receive new information related to HPV vaccination. It is expected that the parents will later provide information support to their children, it would help them enhance their confidence to make self-decisions related to health behavior.

In Indonesia, HPV vaccination is not yet a mandatory health program for adolescents, so its coverage is still limited. Nurses and midwives have important roles, especially as an advocate between health workers and the government so that HPV vaccination can be widely available. Nurses and midwives have a comprehensive opportunity to educate adolescents and their parents and teachers about the HPV vaccine. Nurses and midwives also have an important role as communicators, providing information and mediators among students, families, and teachers if they face burdens when building trust and facilitating consent. Positive interactions between nurses and adolescents.

LIMITATION OF THE STUDY

The limitation of this study includes that the study approach did not establish a causal relationship. A longitudinal study is needed to improve the understanding of the causal impact of family support on HPV vaccination. In addition, family support information was reported only from the student perspective in this study. Future studies may benefit from gathering more information about family support from the family perspective to reduce study bias.

CONCLUSIONS AND SUGGESTIONS

This study provides information on the significant correlation between family support and the motivation of young women to agree to HPV vaccination. It strengthens the evidence of the family role in adolescent health. However, it only looks at the knowledge of young women who live in urban areas and it may differ from adolescents in rural areas with limited access to health information. Next, an in-depth and broad sample study in rural areas is needed to obtain more information about the role of the family in health. To increase the teenager's motivation, health service and educational institutions need to improve the health education on the prevention of cervical cancer by participating in HPV vaccination. In addition, it is also necessary to provide health education to families about the benefits of the HPV vaccine so then they can provide informational support to adolescents and help them make decisions regarding the HPV vaccine. Evaluating the implementation of family support

programs by the health services is needed and next, the government should develop an innovative program with a more comprehensive target effect to increase the HPV vaccination rate in Indonesia.

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Conflict of Interest

This study has no conflicts of interest.

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