THE CORRELATION BETWEEN KNOWLEDGE OF SEXUAL REPRODUCTION, OPENNESS IN DISCUSSING SEXUAL TOPICS, AND AWARENESS OF THE HUMAN PAPILLOMAVIRUS INFECTION TOWARDS WILLINGNESS FOR HUMAN PAPILLOMAVIRUS INFECTION VACCINATION

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ABSTRACT

HPV is the cause of cervical cancer, which is a concern to Indonesian women. Despite various efforts, awareness of the HPV is still low. The government has started a program of free HPV vaccination for primary school to reduce future rates of cancer. However, cultural taboos on sexual discussion hinder the effective reproductive health awareness. This research determines the correlation between knowledge of sexual reproduction, openness in discussing sexual topics, and awareness of the HPV infection towards the willingness for HPV vaccination. This research used purposive sampling with 300 respondents. The sample criteria were women aged 17-24 years and who had not received the HPV vaccination. The hypotheses testing was conducted with Kendall's W and Chi-Square using SPSS. The results showed that the correlation between knowledge of sexual reproduction and awareness of the HPV infection towards openness in discussing sexual topics with Sig. value of 0.006 < 0.01, stated as very significant from the Kendall's W. Additionally, the correlation between openness in discussing sexual topics towards willingness for HPV infection vaccination with Sig. value of 0.000 < 0.01, stated as very significant from the Chi-Square. The findings of this study support the validity of the KAP model.

Keywords: Cervical Cancer, Human Papillomavirus (HPV), HPV Vaccination, KAP Model (Knowledge, Attitude, and Practice)

INTRODUCTION

Cancer, particularly cervical cancer, is a threatening disease that may significantly affect individuals' wellness. It represents a significant concern to the general well-being and value of life for individuals. Prolonged genital high-risk human papillomavirus (HPV) infection is responsible for around 99.7% of cervical cancer cases (Okunade, 2020). Frequently changing of sexual partners, someone who's engaged in sexual activity even if they have only had intercourse with one person, having intercourse before the age of 18 years old, background of sex-related illnesses and long-term use of contraceptive methods are possible causes for HPV infection (Louie et al., 2009).

According to the WHO, worldwide in 2018, there were about 570.000 diagnosed with cervical cancer and 311.000 deaths. In 2020, according to the CDC, with an estimated 604.000 new cases and 342.000 deaths worldwide. According to the Ministry of Health of Indonesia website, cited that in 2018, there were 2.747.662 or 7.34% women who had early detection of cervical cancer and 77.699 of women positive to IVA. Cervical cancer rate in Indonesia is attributable to an absence of screening. Recently, Indonesia reached 7.02% of the 70% cervical cancer screening objective by 2023 (FKUI, 2023). Each year, more than 15.000 instances of cervical cancer are diagnosed in Indonesia, with around 8.000 of them resulting in death (Lelly, 2020).

According to the WHO, the world health assembly, in 2020, approved the global strategy to accelerate the prevalence of cervical cancer as a public health concern, which advocates for a comprehensive approach for both primary and secondary prevention. Scientific evidence supports the global elimination strategy, which states that 99.7% of cervical cancer cases are caused by long-term infection with high-risk HPV variants and HPV vaccination prior to sexual debut or the first intercourse experience is a highly effective primary preventive measure (Wilailak et al., 2021).

According to previous research, a woman who receives the HPV vaccination before starting a sexual relationship can avoid between 70% to 90% of cervical cancer occurrences (Maza et al., 2016). The government's initiative to broaden HPV vaccination aims to safeguard the well-being of future generations of Indonesian women,

ensuring their health and reducing the incidence of cervical cancer, which currently ranks as the second leading cause of death in Indonesia. The free program of HPV vaccination has been provided at no cost since 2022 for girls in grades 5 and 6 of elementary school. The government pursues the target with a maximum for children under the age of 14 years old to take a vaccination quoted on the ministry of health's website.

The high rate of HPV cases has led to a number of issues with the implementation of the vaccination program. There are several factors which affect the willingness for HPV infection vaccination, such as knowledge of sexual reproduction. Having the knowledge of sexual reproduction, not only has the potential to maintain the health and function of their organs, but it may also prevent them from performing unpleasant things. On the other hand, a lack of knowledge may lead to undesirable results. Sexually transmitted infection, pregnancy at a young age which results in the death of minors, are all common outcomes of a lack of socialization and education (Deshmukh & Chaniana, 2020).

Knowledge of sexual reproduction empowers individuals to take control of their reproductive health, foster healthy communication about boundaries contributing to healthier well-being. Adolescence is also a period where individuals discover what it means to like each other. Beginning with colleagues, close relationships are characterized by mutual admiration and as the level of attraction develops, it will continue with sexuality-related issues. Recent study data from a survey of 500 unmarried young adults in Indonesia, they had their first sexual experience between the ages of 18 to 20 years old (Raissa et al., 2020). Global data shows 2 out of 3 women in 2022 have a lack of sexual knowledge and 34% of young people have adequate knowledge of their sexual reproduction (UNESCO, 2022).

Discussion is a type of verbal interaction that encompasses a range of communicative components, including talking, listening, and delivering responses. By participating in the exchange of ideas, individuals have the opportunity to be open to different points of view and maybe change their opinions on an issue in particular. In Indonesia, discussing sexuality is still considered taboo, shameful, despite the fact that sexuality is a far more complicated topic that includes reproductive sexual health, sexually transmitted infection, contraception and relationships (Khairani,

2022). A survey of over 1.000 Indonesian parents revealed that one-third find discussing reproduction and sexuality challenging, 39% find it complicated and 15% refuse to discuss sexual maturity (Raissa et al., 2020).

A particular kind of cancer that can be discovered early on is cervical cancer through screening. According to WHO, the majority of individuals will contract HPV at some point in their lives, even if they are unaware of it and many might lack any symptoms of infection. The early identification of cervical cancer is essential for enabling rapid implementation of further care; those who have this form of cancer have a significantly increased life expectancy. As a result, individuals who are diagnosed with cervical cancer in its early phases, specifically stages one and two, have the potential to attain a life expectancy of 93%. However, if diagnosed in an advanced stage, specifically stage four, the chance of surviving is merely approximately 15% (Arif, 2022).

Previous studies, focused on HPV vaccination by looking at the knowledge as the factor on high school students in Indonesia. 8.4% of respondents demonstrated an adequate level of knowledge regarding cervical cancer, 16.9% possessed an adequate level of knowledge regarding the HPV vaccine and 92.2% of respondents have not had HPV vaccination (Dethan & Suariyani, 2017). In 2015, the HPV vaccination rate in Indonesia was 86.9%, but in 2017 it dropped by 50% due to a lack of education and awareness of HPV (Mutiar et al., 2023). As a result, raising awareness about HPV is essential in order to promote HPV vaccination and minimize people's risk of developing this cervical cancer. In Indonesia, the achievement of HPV vaccination in 2022 is not yet ideal compared to the aim of 90%, thus, it will be delivered uniformly throughout all provinces in Indonesia this year stated by Kompas News (Arlinta, 2023).

This study focuses on adolescents in Indonesia to see their willingness for human papillomavirus infection vaccination, particularly among women in Indonesia. This research uses knowledge of sexual reproduction, openness in discussing sexual topics and awareness of the human papillomavirus infection as determinant factors. This study examines their knowledge of sexual reproduction, their attitudes towards discussing sexually related topics and awareness of the Human Papillomavirus as a sexually transmitted infection, which

then leads to their willingness for HPV infection vaccination.

Research Objective

The research is aimed to explain the correlation between knowledge of sexual reproduction, openness in discussing sexual topics, and awareness of the human papillomavirus infection towards willingness for human papillomavirus infection vaccination.

Theoretical Framework

KAP Model

The KAP model is a behavioral change model proposed by western researcher in the 1970s that divides human behavior into three sequential processes: the knowledge of acquisition, developing an attitude, and practice or behavior development. The model outlines the evolving connection between knowledge, attitudes, and practice as follows: knowledge forms the basis for changing behavior to attitudes that makes practice arise or behavior happen. Thus, human behavioral change is achieved through the acquisition of the knowledge, generation of attitudes, and behaviors or practices in three successive processes. Below is a comprehensive explanation of each element of the KAP model (Schwartz, 1976):

1. Knowledge

   This refers to the information that individuals possess about a particular topic. Knowledge can be factual, procedural, or conceptual.
2. Attitude

   Attitude refers to an individual's perspective towards a particular subject. It encompasses the assessment that influences how individuals perceive and respond towards the topic.
3. Practice

   Practice refers to the actual actions exhibited based on their knowledge and attitude.

The KAP model stands for Knowledge, Attitude, and Practice to understand and analyze human behavior responses to certain phenomena. Therefore, the KAP model in this study will be modified by including awareness for assessing people's awareness on the infection that will be studied in this topic. Below is a conceptual framework of the research:

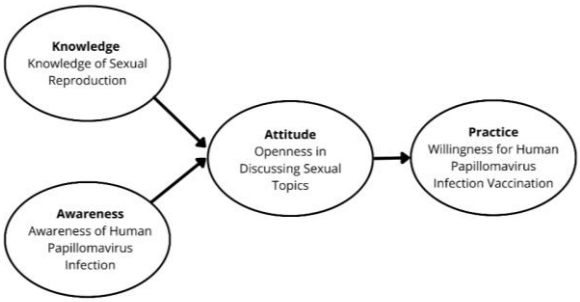

Figure 1. Conceptual Framework Based on KAP Model

The study's conceptual framework revolves around knowledge as a pivotal element in the KAP model (Knowledge, Attitudes, and Practices) concerning sexual reproduction. A comprehensive understanding of sexual reproduction empowers individuals to make informed decisions about their sexual health, including understanding their sexual organs, reproductive functions, and risks of sexually transmitted infections (STIs) like HPV. Openness in discussing sexual topics reduces stigma around STIs and promotes attitudes conducive to HPV vaccination. Awareness of HPV transmission and vaccine efficacy further informs individuals' decisions, highlighting the interplay between knowledge, awareness, attitudes, and vaccination practices in promoting sexual health.

The KAP model, with its focus on Knowledge, Attitude, and Practice, is a framework for understanding human behavior. This study will examine on adolescent's women, 17 to 24 years old as the population under study, to see the willingness for vaccination against human papillomavirus infection. In conclusion, the KAP model offers insights into how knowledge, attitude, and practice intertwine, serving as a roadmap for effective interventions aiming at behavioral changes in various fields such as health, education, and social sciences.

Hypotheses

H_1: There is a correlation between knowledge of sexual reproduction and awareness of the Human Papillomavirus infection towards openness in discussing sexual topics.

H_2: There is a correlation between openness in discussing sexual topics towards willingness for human papillomavirus infection vaccination.

Research Methods

Type of Research

This study used a quantitative method using explanatory as a type of research, which is a form of hypothesis and test through empirical studies to explain phenomena (Imbeau et al.,

2021). Researchers used three independent variables, knowledge of sexual reproduction (X_1), openness in discussing sexual topics (X_2), awareness of the human papillomavirus Infection (X_3) and one dependent variable, willingness for human papillomavirus Infection vaccination (Y).

Population

The population in this study were women aged 17-24 years old and have never been vaccinated against Human Papillomavirus. This consideration is made because those ages are at a higher risk or vulnerable to reproductive health issues.

Sampling Technique

The sampling technique used in this research is a non-probability sampling method, a sample selection that employs non-random ways to select a group of people to participate in research. This research used purposive sampling, is a sample that has characteristics established by the researcher for research-related purposes (Andrade, 2021).

Sample Size

The number of samples used was 300 respondents. This refers to Delice (2010) which states that the ideal sample size for most studies is 30 to 500.

Type and Sources of Data

This research used primary data obtained directly from the main source, namely the responses received from the questionnaires filled out by the respondents. Data was collected from a sample of 300 respondents who completed the questionnaire via the Google Form link. Secondary data collected from other sources that are relevant to the supporting data of this study are also used by researchers.

Research Instrument and Data Collection Techniques

To acquire primary data in this study, data is collected utilizing a technique in the form of a self-administered questionnaire. Respondents will be given a set of statements and questions to answer by the researchers. Data collection will be done by distributing the questionnaire via social media to 300 respondents who complete each question and statement individually. Furthermore, secondary data collected through journal references, e-books, and writing references from a variety of different sources that are relevant and credible.

Analysis Data Technique

In this study, Kendall's W correlation and the Chi-Square test were employed for data

analysis. Kendall's W was used to assess correlations among multiple variables (Field, 2005), while the Chi-Square test examined bivariate relationships between two variables (Warne, 2017). Kendall's W provides a correlation coefficient ranging from +1 to -1, indicating the direction and strength of correlations; positive coefficients denote linear relationships, whereas negative ones suggest non-linear associations. Significant correlations were determined by Asymp. sig values below 0.05 or 0.01, assessed using the Statistical Package for Social Sciences (SPSS) (Field, 2005).

RESULT AND DISCUSSION

Categorization of Knowledge of Sexual Reproduction Variable

Table 1. Categorization of X_1

Score	Category	F	Percentage
0 – 7	Low	4	1.3%
8 – 15	Medium	102	34.0%
16 – 23	**High**	**194**	**64.7%**
Total		300	100%

In the knowledge of sexual reproduction variable, it can be determined that the majority of respondents have adequate knowledge. Therefore, after the data is processed and categorized as a whole, it can be concluded that the knowledge of sexual reproduction possessed by respondents is included in the high knowledge category and results in a percentage value of **64.7%.**

Categorization of Openness in Discussing Sexual Topics Variable

Table 2. Categorization of X_2

Score	Category	F	Percentage
0 – 6	Less Open	32	10.7%
7 – 13	Fairly Open	71	23.7%
14 – 20	**Open**	**197**	**65.7%**
Total		300	100%

In the variable openness in discussing sexual topics, it can be seen that the majority of respondents have an adequate openness. Therefore, after the data is processed and categorized as a whole, it can be concluded that openness in discussing sexual topics held by respondents is included in the level of open category and results in a percentage value of **65.7%.**

Categorization of Awareness of the HPV Infection Variable

Table 3. Categorization of X_3

Score	Category	F	Percentage
0 – 2	Low	37	1.3%
3 – 5	Medium	72	34.0%

Score	Category	F	Percentage
6 – 8	**High**	**191**	**64.7%**
Total		300	100%

In the awareness of the HPV Infection variable, it can be seen that the majority of respondents have an adequate awareness. Therefore, after the data is processed and categorized as a whole, it can be concluded that the awareness possessed by respondents regarding HPV Infection is included in the high awareness and produces a percentage value of **64.7%.**

Frequency of Willingness for HPV Infection Vaccination Variable

Table 4. Frequency of Y

Question	Response Options		Total
	Yes	**No**	
1.Apakah anda bersedia untuk di vaksinasi dengan vaksin HPV?	**253 (84,3%)**	47 (15,7%)	300 (100%)

This question represents the respondent's decision between the two options of receiving or refusing the vaccination. The result shows that as many as 253 respondents expressed willingness for HPV infection vaccination, while the rest of respondents stated that they were not willing. Therefore, the level of willingness for HPV vaccination of the respondents studied can be considered significantly **high.**

HYPOTHESES TESTING

Analysis on Knowledge of Sexual Reproduction and Awareness of the HPV Infection towards Openness in Discussing Sexual Topics

Table 5. Correlation of X_1 and X_3 towards X_2

Test Statistics

N	300
Kendall's W[a]	.017
Chi-Square	10.109
df	2
Asymp. Sig.	.006

a. Kendall's Coefficient of Concordance

The test results were found to be highly significant with a Asymp. Sig. value of 0.006 meaning Sig. <0.01. This implies that there is a correlation between knowledge of sexual reproduction and awareness of the human papillomavirus infection towards openness in discussing sexual topics. With a Kendall's W value shown as 0.017 which means as a weak correlation (H_1 accepted).

Analysis of Openness in Discussing Sexual Topics towards Willingness for HPV Infection Vaccination

Table 6. Correlation of X_2 towards Y

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	45.660[a]	2	.000
Likelihood Ratio	41.386	2	.000
Linear-by-Linear Association	45.415	1	.000
N of Valid Cases	300		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 5.01.

The assumption test is fulfilled, meaning that there are no cells that have an expected count of less than 5. In addition, it is also shown that the table formed is not a 2x2 table. Based on the assumptions and table formed, it can be concluded that the determination of asymptotic significance uses Pearson Chi-Square. The significant value is found to be highly significant at 0.000 which means Asymp. Sig. <0.01. Therefore, it can be summarized that openness in discussing sexual topics has a correlation with willingness for HPV infection vaccination (H_2 accepted).

CONCLUSIONS

1. In this study, the results showed that there is a correlation between knowledge of sexual reproduction and awareness of the HPV infection towards openness in discussing sexual topics. This is proven by the results of the Kendall's W test obtained in the form of a Asymp. Sig of 0.006, so it can be seen that there is a correlation and the research hypothesis is accepted. In addition, the resulting coefficient of correlation is 0.017 which means that the correlation is in a weak positive.

2. In this study, the results showed that there is a correlation between openness in discussing sexual topics towards willingness for HPV Infection vaccination. This is proven by the results of the Chi-Square test obtained in the form of a Asymp. Sig of 0.000, so it can be seen that there is a correlation and the research hypothesis is accepted.

SUGGESTIONS

1. **Theoretical Suggestion**

   Based on the finding, researchers suggest sexual comprehensive education to increase knowledge of sexual reproduction which leads to awareness of sexually transmitted infection and it may improve attitudes in discussing sexual topics. Increasing openness in discussing sexual topics may then encourage willingness to take preventive measures. In addition, future research is recommended to examine the role of contextual factors that may affect the correlation between knowledge of sexual reproduction, openness in discussing sexual topics, awareness of the HPV infection, and willingness for HPV Infection Vaccination. Future research may also consider the effectiveness of intervention programs that aim to increase knowledge and awareness about sexual health, as well as increase openness in discussing sexual topics.

2. **Practical Suggestion**

   Practical suggestion that can be drawn from this study is the importance of enhancing knowledge of sexual reproduction and awareness of the HPV infection as an effort to encourage the willingness for HPV infection vaccination. Therefore, it is recommended to develop educational programs and awareness campaigns that can be carried out by healthcare institutions, community health center and health-focused NGOs that are more focused on increasing public understanding of sexually transmitted infection, thereby increasing willingness for HPV infection vaccination.

3. **Social Suggestion**

   In this study, it can be seen that the majority of respondents have a high awareness of the HPV infection followed by a willingness for HPV infection vaccination which can also be considered as high. However, there were still some who stated that they were not willing to be vaccinated. Based on these findings, the researcher offers social suggestion for the community organizations that are concerned with the issue of HPV, by developing a comprehensive educational program on sexual reproduction and HPV, including an explanation of how HPV is transmitted, the risks caused, and the benefits of vaccination. These programs

may be implemented in schools, universities, and within local societies.

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