CHAPTER I

INTRODUCTION

1.1 Background

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. Global Burden of Cancer Study stated, In South-East Asia, there were an estimated 175.000 cases of cervical cancer and 94.000 deaths in 2012, with a 5-year prevalence of 465.000 instances of cervical cancer. In 2020, according to the CDC, with an estimated 604.000 new cases and 342.000 deaths worldwide.

Screening and early detection strategies perform a part against HPV in Indonesia, aiming to determine the signs that indicate their cervix is abnormal. Women tested positive to IVA, indicating that their cervix is unusual and may be at risk of

getting cervical cancer. 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). From the Ministry of Health of Indonesia website, 23.4 per 100.000 people had cervical cancer in 2019, with an average mortality rate of 13.9 per 100.000. WHO recorded in Indonesia there were 36.633 cervical cancer cases and 21.003 number of deaths in 2020, ranking second over the cancer cases.

Insufficient treatment for cervical cancer may result in adverse psychological consequences, which means that an individual might experience psychological reactions such as fear and unpredictability about what is to come. This concern leads to psychological distress, which causes an individual in order to postpone medical treatment. This absence may lead to a reduction in life expectancy.

The argument that follows proposes that in the absence of efficient methods for the prevention of cervical cancer, the prevalence of the infection will increase, which will lead to the development of significant socioeconomic effects, such as individuals with lower financial standing facing challenges in accessing social services which can lead to gaps in screening or also individuals with lower education might be

unfamiliar with the signs of cervical cancer, in addition to a reduction in an individual's quality of life (FKUI, 2023).

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. Cited on the ministry of health's official website, the number of deaths from cervical cancer approaches 50% since it is detected after it has become fatal.

Budi Gunadi Sadikin as a health minister vowed to guarantee the routine vaccination program, particularly the HPV vaccination and he declared that the HPV vaccine has been provided at no cost since 2022. The free program of HPV vaccination is provided for girls in grades 5 and 6 of elementary school. According to the ministry

of health's website, the effectiveness of the HPV vaccine is optimal given before the menstruates, this is done mainly to reduce the prevalence of cervical cancer early on. Thereby, 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 government strongly recommends vaccination for 14 years' old and above who are not yet sexually active and adults who are already sexually active started from the ministry of health's official website. The issuance of a Joint Decree of Four Ministers: The Minister of Health, the Minister of Education, Culture, Research and Technology, the Minister of Religion, and the Minister of Home Affairs—on the Implementation of Health Status Improvement of the government's dedication to the achievement of HPV vaccination, as stated on the website of the Ministry of Health.

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).

Individuals who have an in-depth knowledge of sexual reproduction are able to comprehend the methods of transmission of sexually transmitted infection (STIs) as

well as preventative measures. This may help in the prevention of the transmission of numerous infections. Lack of knowledge about sexual reproduction, health and infectious diseases can make them vulnerable to the risk of adolescent promiscuity, which may have a negative impact on their future. Based on the demographic and health survey conducted by the national population and family planning agency, in 2018, 7.6% or 12.612 male adolescents and 1.5% or 9.971 female adolescents had sexual intercourse before marriage (Khairani, 2022).

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). This is cause for concern, considering that they are still in the process of growing physically.

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). Promiscuity that leads to premarital sexual behavior such as dating, holding hands and hugging has become something common in the lives of the teenagers. In 2016, a National Medium-Term Development Plan survey revealed that

76.6% of teenagers believe women can become pregnant through sexual relations, 55.2% start dating and 82.9% express love through touching (Patroni & Ismiati, 2019).

Adolescence phase is a transitional era, those between the ages of 15 to 24 years old mostly are not yet married, vulnerable to reproductive health issues and they frequently desire to try things without understanding the long-term consequences stated by the National Family Planning Coordinating Agency. Following by the statistics Indonesia and Macro International on Young adult reproductive health survey stated that the ages from 15 to 24 years old over 19.000 adolescents, less than 60% comprehended puberty of physical changes, 26% knew woman's fertile period is midway between periods and 56% knew unprotected sexual activity on woman might get a pregnant.

Discussion is a type of verbal interaction that encompasses a range of communicative components, including talking, listening, and delivering responses. Discussions have the ability to shape an individual's viewpoints and beliefs. 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. Communication also serves to facilitate sexual discussion, hence enhancing public awareness and comprehension on the significance of preventive measures of sexual health.

Effective interpersonal interaction in this context promotes an environment conducive to open discussion on sensitive subjects, such as sexuality and reproductive health. By employing a wise communication strategy, parents and friends can facilitate

discussions on several sexual topics, enhance understanding of sexually transmitted infections and highlight the advantages of vaccinations in preventing infections. Through the open discussion of these issues, stereotypes can be removed and public understanding can be strengthened.

A comprehensive understanding of sexual reproduction can assist the development of open communication about sexuality within relationships, it enables parents, friends or partners to discuss both needs and illnesses related to sexuality to sexual health (Rosenthal & Shirley Feldman, 1999). The issue of sexual health among adolescents is a significant public health concern worldwide, but it has particular significance in low- and middle-income nations (Maina et al., 2020). There are alarming rates of illnesses and deaths due to sexual and reproductive health among women.

Furthermore, there are social and cultural consequences linked to unfavorable sexual and reproductive health outcomes. The view that openness in discussing sexual topics is taboo makes adolescents reluctant to discuss as another factor studied in willingness for human papillomavirus infection vaccination. 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).

In case adolescents are not taught early on, they might explore for themselves on the internet without any guidance, leading them to receive the improper impression and knowledge of what they are discovering. The majority of adolescents in Indonesia

undergo their growth process while being closely monitored by their parents, within a cultural context that regards discussions about sexuality as prohibited. 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).

Parent-child communication around sexuality is a significant topic within the field of sexual education and health communication research. Open family conversation about sexuality, may result in an array of favorable sexuality wellness results from kids to the adolescent. Although parents have the ability to educate and inform their children about sexual topics from the ease of their own homes, there are numerous challenges that must be overcome on an interpersonal, community, and cultural level.

Establishing a conducive, safe, and open culture is crucial for facilitating informative conversations on sexuality. Sexual discussions may develop not only within a family environment, additionally within social relationships among friends. Engaging in sexual discussions with friends can contribute to the normalization of conversations surrounding reproductive health and other topics pertaining to sexuality. Furthermore, these discussions may assist in the socialization of health-related decision-making.

However, the reality derives from a survey conducted among students ranging from junior high school to university level in Jakarta. The survey showed that around 60% of respondents believed that discussion of sexual topics does not need to be

addressed since they are afraid of being mocked or called dirty and they viewed sexuality, sexual reproductive issues are unimportant and some of them faced this issue as a joke (Raissa et al., 2020).

Participating in several open conversations around sexual topics is essential in encouraging responsible behavior, encouraging frequent health testing and developing a higher awareness of the risks associated with sexual activity. Supported by previous studies by Padjadjaran University in 2018, stated the factors contributing to the rise in adolescents sexually transmitted infection was ignorance on avoiding talking about sexual and reproductive health (Ulfa Rahayu, 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 limited implementation of early preventative measures to reduce the occurrence of cervical cancer in Indonesia can be attributed to inadequate awareness among the public. Another factor that affects willingness for HPV infection vaccination is awareness of the human papillomavirus 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% (Arif, 2022). However, if diagnosed in an advanced stage,

specifically stage four, the chance of surviving is merely approximately 15% (Arif, 2022).

As of March 2022, data from the Ministry of Health website indicates that there is an inadequate level of awareness of HPV among women, particularly reaching only 3.8% among women aged 30-50 years old. As compared to the coverage that was reported in 2018 to 2020, which was 8.29%, this percentage experienced a decrease, stated from the Ministry of Health Indonesia website. This indicates that HPV awareness performs an essential role in reducing the prevalence of cervical cancer, which has the potential for lowering the death rate in Indonesia.

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). The low level of knowledge, coupled with the low vaccination rate, may contribute to a higher risk of cervical cancer in the future, as HPV is a significant risk factor for this type of cancer. Therefore, raising awareness is needed in this research result.

In Italy, gender has a role on individual awareness, 29.5% of adolescents scored at least average on HPV awareness, with females greater than male's adolescents (Brunelli et al., 2021). Furthermore, the majority of adolescents had not had HPV vaccination, as parental decision-making was reported to hold the choice in 64% of cases (Brunelli et al., 2021). Female adolescents were more likely to engage in

discussions about family and adolescence, specifically about their awareness of HPV to HPV vaccine uptake and the availability of parental support for this preventive measure (Brunelli et al., 2021).

Throughout Nigeria, barely 58.1% of students had awareness regarding cervical cancer and a mere 14.1% were familiar with the HPV vaccine (Makwe et al., 2012). According to the findings, it is essential that this knowledge gap be filled by focused awareness-raising and education efforts in order to prevent cervical cancer. According to WHO, 70% of all cervical malignancies are caused by the two most prevalent high-risk genotypes, HPV 16 and 18. As reported by the WHO, HPV caused 500.000 cases and 250.000 deaths from cervical cancer in 2002, with approximately 80% occurring in nations with greater poverty.

Cervical cancer may affect women of any age, including those between the ages of 15 to 24 years old (10.67%), 25 to 34 years old (11.25%) and 35 to 44 years old (31.40%) (Lelly, 2020). The primary approach for preventing HPV infection is to generate a HPV vaccination to decrease the chance of being exposed to this infection which leads to cervical cancer. The Health Information National Trends Survey (HINTS) reported that HPV vaccines have demonstrated high efficacy in preventing HPV infection and reducing the likelihood of HPV-related cancers.

Because of the risk of HPV, adolescent's women under the age of 20 years old and those who have had menstruation should begin prioritizing their reproductive health (Burd, 2003). 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.

1.2 Research Problem

Cervical cancer, primarily caused by human papillomavirus (HPV), poses a significant threat to women's health, particularly those of reproductive age. Causes such as frequently changing 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 rates.

Globally, the incidence of cervical cancer is alarmingly high, with Southeast Asia, including Indonesia, bearing a substantial burden. This indicates a need for preventive measures. Cervical cancer may become life-threatening if it's not to be treated and detected in its early stages, making treatment more difficult and enhancing the possibility of a higher death risk. The Indonesian government has taken steps to expand HPV vaccination by providing the vaccine free of charge for a particular age. Also the government urges for ages of 14 years old and above to take a HPV vaccination as the essential of prevention.

This study used several determinant factors on willingness for human papillomavirus infection vaccination. Having the knowledge of sexual reproduction, it may prevent them from performing unpleasant issues but individuals with inadequate knowledge of sexual reproduction may lead to engaging in unsafe actions, such as sexual activity, which is linked to the transmission of HPV.

In Indonesia, there is a prevailing cultural taboo around openness in discussing sexual topics. This hinders the open discussion of information regarding sexual scopes, resulting in a lack of openness to discuss on subjects related to both sexuality and reproductive health. The absence of awareness leads to decreased vaccination rates and hinders effective cervical cancer prevention initiatives. On the other hand, raising an awareness of the HPV has the connection with cervical cancer for increasing the public's acceptance of vaccination.

Therefore, this study aims at the adolescent to look into their willingness for human papillomavirus infection vaccination, particularly among women in Indonesia.

Based on this study, a problem that needs to be identified is stated in the following question, “Is there any 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?”.

1.3 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.

1.4 Research significance

In this study the author expects a broad significance goals, which includes the following:

A. Theoretical Significance

In theoretical terms, this research is expected to contribute or participate in knowledge of communication science studies related to willingness for the human papillomavirus vaccination as seen through knowledge of sexual reproduction, openness in discussing sexual topics and awareness of the human papillomavirus infection.

B. Practical Significance

In practical terms, it is hoped that this research can become a reference topic that discuss the correlation between knowledge of sexual reproduction, openness in discussing sexual topics and awareness of the human papillomavirus infection towards willingness for the human papillomavirus infection vaccination.

C. Socially significance

In social terms, this research is expected to provide new information to the public in understanding 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.

1.5 Theoretical Framework

1.5.1 State of Art

Previous studies have been carried out by, First, with the title “Pathways to sexual health communication between adolescent girls and their female caregivers participating in a structured HIV prevention intervention in South Africa” (Thurman et al., 2020). According to this study, sexual health communication between adolescents and their caregivers is essential for reducing behavioral vulnerability among female adolescents. The study's population includes parents and the adolescents according to

their supervision who engaged in the Let's Talk intervention. Based to the findings, let's talk, as an adequately planned action, demonstrated the capacity to put down cultural barriers and contribute to better sexual health communication between parent as a caregivers and adolescents. The study highlights the significance of combining mental health, relationship quality, and technical knowledge into comprehensive sexual health initiatives for adolescents.

Second, with the title "Adolescents' Communication on Sexual and Reproductive Health Matters with Their Parents and Associated Factors among Secondary and Preparatory School Students in Ambo Town, Oromia, Ethiopia" (Bikila et al., 2021). According to this study, there is an absence of studies on parent-adolescent communication in the town of Ambo, Ethiopia, despite its significance. Students in grades 9 through 12 who were enrolled in preparatory and secondary schools in Ambo Town during the 2018/2019 academic year represent the study's population. There were discovered several factors that have been found to be related to communication levels. These factors encompassed gender, type of school, father's level of learning, viewed value of sexuality education, sources of information, and mother's openness. The findings highlight the significance of implementing specific measures to enhance communication between parents and adolescents, as well as to address adolescent's reproductive health, taking consideration of the aspects that have been identified.

Third, with the title "Social media use and human papillomavirus awareness and knowledge among adults with children in the household: examining the role of race, ethnicity, and gender" (Lama et al., 2021). The study focuses on the low rates of

human papillomavirus (HPV) vaccination among adolescents and examines the effect of social media use in fostering HPV-related information gaps among parents and caregivers. A nationally representative group of adults with children in the household is the focus of the study. The results show that increasing social media use is linked to higher awareness of HPV and the HPV vaccine, participating in various social media practices is associated with increased HPV awareness. However, there are differences in knowledge according to gender and race/ethnicity, with men and respondents from Asian American, African American, and Hispanic backgrounds showing lower knowledge about HPV and the HPV vaccine. The study indicates that utilizing social media-based activities can effectively raise knowledge of the benefits of HPV vaccine for cancer prevention.

Fourth, with the title "Knowledge, attitude, and behavior on human papillomavirus among adolescents in a rural area of Bali, Indonesia: A cross-sectional study" (Christopher et al., 2022). The topic addressed in this study is a lack of awareness and comprehension of Human Papillomavirus (HPV) and vaccination among adolescents. The research focuses on a group of 10 to 24 years old adolescents who are citizens of Songan Village, Bangli District, Bali Province, Indonesia. The 330 adolescents who engaged in the cross-sectional study had their knowledge, attitude, and behavior regarding HPV and HPV vaccination assessed. The findings show an apparent gap in knowledge, as nearly half of the population is unaware of both HPV and HPV vaccine. According to the findings, a mere 14% of adolescents participate in frequent discussions regarding their sexuality. Moreover, the vast majority of the

population have not received an HPV vaccination, despite the fact that numerous individuals are willing to get vaccinated as they believe early prevention is beneficial. In order to increase adolescent knowledge and encourage HPV vaccination, the research emphasizes the necessity of awareness initiatives.

Fifth, with the title "Willingness to Human Papillomavirus (HPV) Vaccination and Influencing Factors Among Male and Female University Students in China" (Dai et al., 2022). Students in China are highly prone to STIs such as HPV due to their early sexual growth. The objective was to examine and compare students in China who are not immunized against HPV, as well as factors that influence them, including awareness and attitudes. The population in this study was university students, with 3570 males and 3765 females. This study discovered that female students are willing to get a vaccination as they are possessed of greater knowledge and attitudes regarding HPV. Female students are more concerned about contracting the virus and more likely to be advised about vaccination and trust in the efficacy of the vaccine rather than male students. Nonetheless, the cost of living is a major factor in female students' willingness to be vaccinated.

In summary, the previous study highlights the relationship between adolescents and their parents regarding sexuality and reproductive health issues. The significance of Let's Talk, an organized effort for HIV prevention in South Africa, becomes apparent in its promotion of sexual health communication through the reduction of cultural obstacles and improving mental health and relationship quality. In contrast, studies in Ambo Township, Ethiopia, revealed a lack of parent-adolescent communication around

sexual health reproduction, highlighting the critical need for specific measures that consider criteria such as gender, education, and parental openness. Previous study also states leveraging social media for targeted initiatives has the potential to enhance knowledge, awareness about the HPV for cancer prevention and can be instrumental in reducing vaccine hesitancy and increasing uptake, particularly among at-risk populations.

Inadequate understanding of HPV among adolescents in Bali, Indonesia, indicates deficiencies in sexual education that may have effects on the prevalence of sexually transmitted infections and the efficacy of school vaccination initiatives. Furthermore, studies conducted in China showed that there are gender differences in the willingness to get HPV vaccinations and underlined the significance of awareness, attitudes, and economic factors. In summary, these findings support the implementation of comprehensive solutions that are adapted to suit particular cultural contexts. These measures ought to seek to overcome knowledge deficiencies and encourage open discussion, with a primary objective of enhancing overall understanding and outcomes related to sexual health.

1.5.2 Research Paradigm

Enhancing an understanding of how science is applied, the factors that support valid issues, responses, and evidence-based standards requires a firm comprehension of paradigm assumption (Park et al., 2019). Positivism believes that there is only one and single reality and that scientific method is the only way to establish truth and

objective reality (Mohajan, 2020). The purpose is to identify relevant factors, describe and measure the factors, explain the relationship between the variables, and apply the understanding to the organization (Mohajan, 2020).

The research methods are usually quantitative including: sampling, measurement and scaling, statistical analysis and questionnaire (Mohajan, 2020). The following criteria can be used to identify when a research study has adopted a positivist paradigm (Mohajan, 2020): emphasis on identifying and testing causal or associative relationship, employ quantitative data collection, research is usually deductive with focus on theory testing.

1.5.3 Knowledge of Sexual Reproduction

Knowledge of sexual reproduction is the understanding an individual has regarding sexual organs along with the functions, fertilization, pregnancy, contraception methods, sexually transmitted infections (STIs), with the aim for making informed decisions (Susanti, 2021). A person can be prepared for later sexual decision-making through their own knowledge, which can provide age-appropriate, culturally relevant as well as the chance to identify one's beliefs and values to make decisions (Susanti, 2021).

Knowledge of sexual reproduction divides into two parts: sex instruction and sexuality education (Kusumastuti, 2012). Sex instructions comprises an understanding of anatomy (armpit hair growth), production biology (sexual intercourse and sexually transmitted infection), contraception, and how to avoid undesired births (Kusumastuti,

2012). Second, education in sexuality encompasses the subjects of ethics, physiology, and other knowledge necessary for a person to understand themselves as a sexual individual to create healthy interpersonal connections (Kusumastuti, 2012). In addition, knowledge of sexual reproduction gives individuals the ability to be aware of unprotected sex outside of marriage that could lead to sexually transmitted infections (Safita, 2013).

Knowledge of sexual reproduction can provide a better understanding of their bodies, the opposite sex, how to avoid sexually transmitted infection and violence (Susanti, 2021). There are a number of objectives for knowledge of sexual reproduction, including the following (Susanti, 2021):

- Knowing a comprehensive grasp of changes in physical and emotional maturation processes connected to adolescent sexual issues.
- Attitudes are formed with knowledge of sexual reproduction in all its forms provided and aware of how human relationships can fulfill family and individual life.
- Aware of sexual deviance, allowing them to defend themselves and prevent exploitation that could harm their physical and mental health.

According to Anwar et al. (2018) sexual reproduction is encompasses of three interconnected aspects:

- Physical aspect, refers to the human body that can be sensed by the bare eyes and can be described or defined in phrases. This aspect involves the biological

processes and physical interactions necessary for reproduction. It includes the anatomy, physiology, and biological mechanisms.

- Mental aspect, this involves the psychological and emotional aspects related to sexual reproduction. It includes individual feelings, desires, attitudes, perceptions, and emotional connections associated with sexual activities, intimacy, and relationships. Mental aspects can influence an individual's approach to reproductive behaviors, including relationship and sexual attraction.
- Social aspect, this dimension encompasses cultural, societal, and interpersonal aspects that impact reproductive behaviors. It includes societal norms, cultural values, family structures, religious beliefs, education, and social expectations related to sex.

Knowledge of sexual reproduction was measured using three indicators developed by Deepanjali D. Deshmukh and Sukhjeet S. Chaniana in 2020 using a three indicator, namely (Deshmukh & Chaniana, 2020):

1. Knowledge About Female and Male Reproductive Systems.
2. Knowledge Regarding Sexually Transmitted Diseases, Contraception, Masturbation, and Sexual Intercourse.
3. Regarding Involvement in Sexual Activities.

The knowledge about the female and male reproductive system consists of 8 items. Knowledge regarding sexually transmitted diseases, contraception, masturbation and sex-related questions consists of 8 items and regarding indulgence in sexual activities

consisting of 7 items. Each item has the options: "True", "False", and 'I Don't Know'. Furthermore, Involvement in sexual activities has three options: “Yes” and “No”.

1.5.4 Openness in Discussing Sexual Topics

Openness in discussing sexual topics is a willingness of individuals to engage in conversations about various aspects of sexuality (Galvin et al., 2015). An open attitude to discussing sexual topics means being able to communicate openly with others about sexual issues without discomfort, even with family, friends and medical staff (Rosenthal & Shirley Feldman, 1999). There are several topics that may be relevant to discuss (Rosenthal & Shirley Feldman, 1999):

- Description of male and female physiology of reproduction, sexual activity, pregnancy, and various forms of sexual conduct. Also, sexual safety has been the subject of significant campaigns in the rise of the sexually transmitted infection prevalence, it is likely that both parents and teenagers view it as prominent and essential.
- This includes normal changes in growing up, such as getting a period. Also adolescent issues such as pregnancy, abortion, homosexuality and premarital sex.

According to studies in the field of family communication, there is a high level tendency for parents and children to have identical attitudes (Booth-Butterfield & Sidelinger, 1998). Parental attitude refers to the way parents feel and think towards their child, it varies between supportive to oppressive (Booth-Butterfield & Sidelinger,

1998). It represents parents' attitudes and determines how much they participate in their children's life, taking into account their influence on children's decisions, actions, responses, conduct, and all its forms of personality (Booth-Butterfield & Sidelinger, 1998).

Mother's responsiveness during sexual conversations is associated with an increase in adolescent openness, discussion of more topics, engagement, and a decrease in avoidance (Sears et al., 2020). Discussing sexual topics with family members can be complex and requires thoughtful consideration due to various factors (Sears et al., 2020). Therefore, Sears et al. (2020) likely highlighted several important considerations, some of which might include:

- Individual comfort levels, for each family member's comfort discussing sexual topics is essential as sensitivity to their comfort levels and creating a safe environment for discussion is crucial. Since, not everyone may feel equally at ease discussing these matters openly.
- Age and developmental stage, by providing age-appropriate information and discussions that align with their level of understanding helps avoid overwhelming or confusing them.
- Parental guidance and values**,** consistency in discussing sexual topics in line with parental values, while also providing accurate information, can be challenging yet important for quality of life.
- Respecting boundaries, dome family members may not be willing or ready to engage in these conversations and that choice should be respected.

- Openness to communication, encouraging an open dialogue where family members feel safe expressing their thoughts, asking questions regarding sexual subjects and sharing concerns is a key in discussing sexual topics. Establishing trust and maintaining open lines of communication is pivotal for ongoing discussions related to sexual topics.

Openness in discussing sexual topics with friends can contribute to a supportive social environment where individuals can seek advice, provide emotional support, and share information about sexuality (Prinstein & Dodge, 2008). It can help them to build trust as well as understanding among friends and may also promote healthy attitudes towards sexuality and relationships (Prinstein & Dodge, 2008). A study indicated that students who discuss dating, fertility concerns, condoms, and sexual hazards are more frequent with their friends instead of with their parents (Lefkowitz et al., 2004).

Openness in discussing sexual topics was measured using indicator developed by Cheryl L Somers and Gary L Canivez in 2003, namely (Somers & Canivez, 2003):

1. Communication about sexuality

Communication topics about sexuality consists of 20 topics, each item has the options: "Yes" and "No". Responses are summed and higher scores represent greater levels of communication

1.5.5 Awareness of the Human Papillomavirus Infection

Awareness of the Human Papillomavirus infection refers to individuals aware of the human papillomavirus infection as a sexually transmitted infection, which

includes the elements that cause this infection to arise and how to prevent it (Gould, 1988). An individual who has an awareness of HPV infection seeks to perform the motivation for regular health checks, early diagnosis of cervical cancer and expand information about HPV infection, health conditions, and efforts to prevent it (Karningsih et al., 2022). In particular, awareness of the human papillomavirus infection may consist of (Gould, 1988):

- Understanding of HPV, knowing that HPV is a group of related viruses, some of which can cause genital warts and have been linked to various cancers, including cervical, anal, and oropharyngeal cancers.
- Transmission of HPV, HPV can be transmitted and the risk factors associated with its transmission, including unprotected sexual contact, multiple sexual partners, and early sexual activity.
- Prevention of HPV, preventive measures such as HPV vaccination, Pap smears, and IVA tests which can prevent several high-risk virus strains and significantly reduce the risk of cancer and associated genital warts.
- Potential health risks**,** being aware of the potential health risks associated with certain strains of HPV, including the development of genital warts and an increased risk of certain cancers.
- Vaccination recommendations**,** aware that HPV vaccination is recommended for adolescents and young generation to provide protection against several of the most common and potentially dangerous types of the HPV infections.

There are a number of strategies, one of which is to educate people about HPV to build their awareness (Satcher, 2001):

- Begin an initial discourse regarding HPV, including fundamental definitions and treatment options. Since, improving HPV awareness reduces the amount of women being exposed and they promptly prevent the actions that lead to this infection.
- Encourage local authorities to responsibly address HPV-related issues by asking experts to educate the public on the most recent research relating to HPV.
- Provide early access to HPV information and enable parents to be the first educators for adolescents and assist their children in guiding sexuality education in alignment with their beliefs and views.

Human Papillomavirus infection in women has been the dominant focus of research until recently, when the causal relationship between Human Papillomavirus and cervical cancer was discovered (Rajkumar, 2016). As the frequency of human papillomavirus-associated cancers has increased, as well as the formation of certain high-risk populations, there is growing awareness of HPV and the need for a vaccine (Rajkumar, 2016). Therefore, the natural history of cervical cancer has been well examined and persistent cervical infection with specific kinds of HPV has been reported as a necessary causative factor for its emergence, awareness of HPV has increased over the last three to four decades (B.s et al., 2019).

Awareness of the Human Papillomavirus Infection was measured using one indicator developed by Salima Kasymova, Sayward E Harrison and Caroline Post in 2019, namely (Kasymova et al., 2019):

1. HPV Awareness, Perceptions and Experiences.

The HPV awareness, perceptions and experiences consists of 8 items, each item has the options: “Yes” and “No”.

1.5.6 Willingness for Human Papillomavirus Infection Vaccination

Willingness for Human Papillomavirus Infection Vaccination refers to an individual's willingness to receive a vaccination that protects against HPV (Nehal et al., 2021). This includes understanding the benefits of the vaccine, knowing the importance of HPV prevention and receiving vaccination recommendations from healthcare professionals (Nehal et al., 2021). Since 2006, the vaccine has been approved for use in more than 100 nations and the United States was the first nation to implement a publicly sponsored HPV vaccination program (Bruni et al., 2016). Australia began funding its HPV vaccination program in 2007, followed by Malaysia in 2010 and Japan in 2011 (Bruni et al., 2016).

A few factors influencing one's willing to have an HPV vaccination could be (Yacouti et al., 2022):

- Recognition of HPV risks, understanding the potential health risks associated with HPV, including its link to various cancers and genital warts.

- Awareness of vaccine benefits, informed that this vaccine is effective in avoiding infection with a variety of potentially HPV.
- Acceptance of vaccination recommendations, being open to the recommendation for HPV vaccination from healthcare professionals, especially for eligible individuals such as adolescents and young generation.
- Informed decision-making, willingness to make an informed decision about receiving the vaccine, based on reliable information and guidance from trusted healthcare sources.

The HPV vaccine, which protects cervical cancer, touches on delicate issues around sexual conduct, which can make both parents and doctors uncomfortable bringing up the subject as the debate about vaccines has grown (Bloom & Lambert, 2016). The willingness for HPV infection vaccination behavior is influenced by the interaction of multiple level factors, such as (Bloom & Lambert, 2016):

- Aspects that influence vaccination likelihood: knowledge, attitudes, beliefs, social groups and personal history regarding health.
- Organizational factors, such as vaccine method of administration, interactions with health-care professionals promote, or discourage vaccination.
- Public policy, national and regional assistance for policies that facilitate vaccinated acceptance.

The media also influences vaccine willingness, the detrimental impact of vaccine issues relayed by traditional media outlets on vaccination coverage has been

carefully recorded (Bloom & Lambert, 2016). Two-sided news communications containing both pro- and anti-vaccine assertions can mislead readers regarding the status of expert knowledge regarding vaccine safety and negatively affect vaccination willingness (Bloom & Lambert, 2016).

Willingness for Human Papillomavirus Infection Vaccination was measured using measurements developed by Zhenwei Dai, Mingyu Si, Xiaoyou Su, Wenjun Wang, Zhang Xi, Xiaofen Gu, Li Ma, Jing Li, Shaokai Zang in 2022 using one item, namely (Dai et al., 2022):

1. Whether respondents are willing to be vaccinated against HPV, with a response: "Yes" and "No".

1.5.7 Knowledge of Sexual Reproduction, Openness in Discussing Sexual Topics, and Awareness of the Human Papillomavirus Infection towards Willingness for Human Papillomavirus Infection Vaccination

A theoretical framework operates as a road map that illustrates the proposal's concept (Creswell & Creswell, 2018). With the following topic, the correlation between the knowledge of sexual reproduction, openness in discussing sexual topics and awareness of the HPV infection towards willingness for HPV infection vaccination. The KAP model is selected as a theoretical framework to lead this study in order to comprehend these variables.

- **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 (Schwartz, 1976). 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 (Schwartz, 1976). Thus, human behavioral change is achieved through the acquisition of the knowledge, generation of attitudes, and behaviors or practices in three successive processes (Schwartz, 1976).

The KAP model, an abbreviation for Knowledge, Attitude, and Practice as a conceptual framework that is applied across diverse areas, became relevant in social sciences, education, psychology, and other fields where understanding human behavior and the factors driving change were essential (Schwartz, 1976). Initially, this method was applied in the field of public health to evaluate the effectiveness of health education campaigns, especially in addressing infectious diseases and promoting preventive measures (Schwartz, 1976). The KAP model categorizes the process of altering human behavior into three stages, all of which have the potential to significantly change how people behave when it comes to their health (Schwartz, 1976). Below is a comprehensive explanation of each element of the KAP model (Schwartz, 1976):

A. Knowledge

This refers to the information that individuals possess about a particular topic. Knowledge can be factual, procedural, or conceptual. According to the KAP model, it is significant to comprehend an individual's level of knowledge regarding a given topic in order to evaluate their awareness and comprehension.

B. Attitude

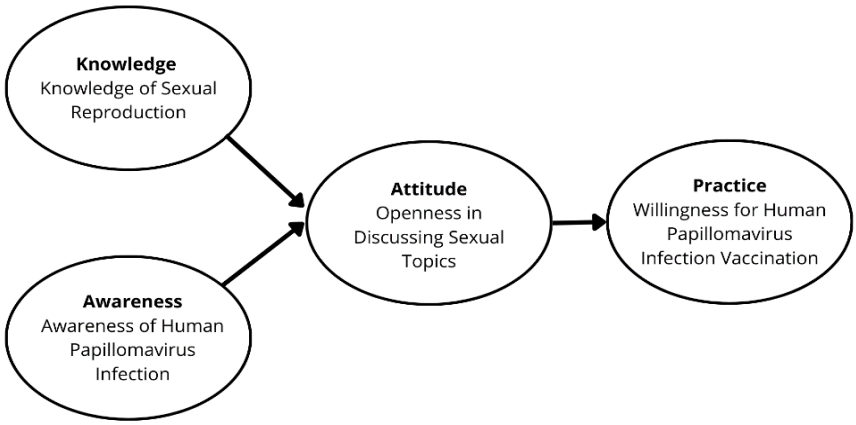
Attitude refers to an individual's perspective towards a particular subject. It encompasses the assessment that influences how individuals perceive and respond towards the topic.

C. 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:

Diagram 1.1 Conceptual Framework Based on KAP Model



The conceptual framework of this study is, knowledge as a key component of the KAP model, knowledge of sexual reproduction, individuals who have a comprehensive understanding of sexual reproduction allows them to make informed decisions about their sexual health. By having a knowledge of sexual reproduction, individuals will understand about their sexual organs and also its functions related to reproductive health and STIs. With knowledge, individuals are likely to understand how infectious diseases such as HPV can be transmitted through sexual activity. Openness in discussing sexual topics can shape individuals' attitudes toward HPV vaccination. Openness with comfortable communication of sexual topics can help reduce the shame often associated with STIs, including HPV. Individuals comfortable discussing sexual topics tend to have fewer taboos associated with sexual health

matters, making them more open to considering vaccination as a preventive measure against HPV as a practice that aligns with their values and preferences.

Awareness of the HPV Infection, which leads to the individual being aware regarding the HPV transmission, the risks of HPV infection and how the vaccines work are essential for individuals to make informed decisions about vaccination. Willingness for HPV infection vaccination is a practice in this context. It is influenced by both knowledge, awareness and attitudes. Individuals who have an accurate knowledge on their sexual reproduction, awareness of HPV infection which is transmitted through sexual activity and have positive attitudes such as openness in discussing sexual topics, have a possibility to engage in the practice of vaccination.

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.

1.6 Hypotheses

The hypotheses in this study as follows:

H1: There is a correlation between knowledge of sexual reproduction and awareness of the Human Papillomavirus infection towards openness in discussing sexual topics.

H2: There is a correlation between openness in discussing sexual topics towards willingness for human papillomavirus infection vaccination.

1.7 Conceptual Definition

1.7.1 Knowledge of Sexual Reproduction

Knowledge of sexual reproduction is the possession of information individuals have on understanding to the sexual reproduction.

1.7.2 Openness in Discussing Sexual Topics

Openness in discussing sexual topics is the attitude of individuals who are willing to engage in conversations about various aspects of sexuality without hesitation or judgment to contribute to better communication within the sphere of sexuality.

1.7.3 Awareness of the Human Papillomavirus Infection

Awareness of the Human Papillomavirus Infection is an individual's aware of the existence of human papillomavirus infection as the sexually transmitted infection.

1.7.4 Willingness for Human Papillomavirus Infection Vaccination

Willingness for Human Papillomavirus Infection Vaccination is an individual's tendency to be willing to engage in behaviors related to receiving a HPV vaccination.

1.8 Operational Definition

1.8.1 Knowledge of Sexual Reproduction

Knowledge of Sexual Reproduction according to Deshmukh & Chaniana (2020) can be measured through three indicators below:

1. Knowledge of the Female and Male Reproductive Systems: Respondents provided their knowledge about the female and male sexual reproductive systems.
2. Knowledge of Sexual Transmitted Diseases, Contraception, Masturbation and Sexual Intercourse: Respondents provided their knowledge regarding sexual transmitted diseases, contraception, masturbation and sexual intercourse.
3. Regarding Involvement in Sexual Activities: Respondents answered questions regarding involvement in sexual activities.

1.8.2 Openness in Discussing Sexual Topics

Openness in Discussing Sexual Topics according to Somers & Canivez (2003) can be measured through indicator below:

1. Communication about sexuality: Respondents were asked to indicate whether they had ever engaged in discussions about sexuality from a list of 20 topics.

1.8.3 Awareness of the Human Papillomavirus Infection

Awareness of the Human Papillomavirus Infection according to Salima Kasymova, Sayward E Harrison and Caroline Post (2019) can be measured through indicator below:

1. HPV Awareness, Perceptions and Experiences: Respondents answer the questions whether they have heard or know about HPV.

1.8.4 Willingness for Human Papillomavirus Infection Vaccination

Willingness for Human Papillomavirus Infection Vaccination according to Zhenwei Dai, Mingyu Si, Xiaoyou Su, Wenjun Wang, Zhang Xi, Xiaofen Gum Li Ma, Jing Li, Shaokai Zang (2022) can be measured through one item below:

1. Willingness for human papillomavirus infection vaccination: Respondents were asked to indicate their willingness to receive the HPV vaccination.

1.9 Research Methods

1.9.1 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 (X1), openness in discussing sexual topics (X2), awareness of the human papillomavirus Infection (X3) and one dependent variable, willingness for human papillomavirus Infection vaccination (Y).

1.9.2 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.

1.9.3 Sampling

1.9.3.1 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).

1.9.3.2 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.

1.9.4 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.

1.9.5 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.

1.9.6 Data Processing Techniques

A. Editing

Following data collection in the field, an editing process is implemented to verify the absence of errors during instrument completion. This ensures that the data obtained is more valid, reliable, and accountable.

B. Coding

During this phase, each section of data is classified into distinct categories and assigned a corresponding sign, code, or symbol.

C. Tabulating

During this phase, data is arranged into tables according to specific criteria, which are afterward changed according to the requirements of the analysis that is to be explained.

1.9.7 Data Analysis Technique

1.9.7.1 Analysis Data Technique

Kendall's W correlation and Chi-Square were used for data analysis in this study. Kendall's W test is utilized to examine the hypothesis of the correlation between two or more variables (Field, 2005). The second hypothesis used the Chi-Square test. One of the bivariate tests which aims to determine the correlation between the two variables (Warne, 2017).

The direction of correlation can be seen through the correlation coefficient value in Kendall's W, as well as the level of the correlation strength. The correlation value ranges from +1 to -1 (Field, 2005). If the correlation coefficient is positive, it indicates that the correlation between the variables is in the linear direction (Field, 2005). In contrast, a negative correlation coefficient indicates that the correlations between these two variables is not linear (Field, 2005). If Asymp. sig results are less than 0.05 or 0.01, means there is a significant. If the Asymp. sig reaches 0.05 or 0.01, the correlation between the variables is stated as insignificant. Furthermore, the Statistical Package for Social Sciences (SPSS) tool will be utilized to determine the findings of this research.

1.9.7.2 Validity Test

Validity test refers to the degree to which a measuring instrument performs its intended function with precision and accuracy (Taherdoost, 2016). It means that the purpose of the validity test is to determine the accuracy of a questionnaire. A questionnaire is considered valid when its questions have the capacity to explain the concept that the questionnaire intends to evaluate (Taherdoost, 2016).

1.9.7.3 Reliability Test

The reliability test examines the instrument's reliability and consistency in utilizing variables. Reliability is a quantitative measure that indicates the degree to which a measuring instrument can be considered reliable or consistent (Taherdoost, 2016). A measuring instrument is considered reliable if it is used frequently to assess the same condition and the resultant measurement results are relatively consistent (Taherdoost, 2016).