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VULVA HYGIENE BEHAVIOR DETERMINED BY HEALTH LITERACY AMONG ADOLESCENT GIRLS

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ABSTRACT

Introduction: Teens as young as 15-24 are vulnerable to reproductive system infections due to poor teenage vulva hygiene, exacerbated by a lack of understanding of the vulva's functioning. According to estimates, teenagers worldwide report reproductive channel infections. Previous research revealed that 46% of teenagers had poor reading skills. **Aim:** The goal of this study is to assess the association between healthy habits and vulva cleanliness in teenage girls. **Methods**: The study employs quantitative approaches, with 289 responses from high school students obtained by proportionally organized random sample processes. The HLS-EU-16Q Indonesian instruments and the vulva hygiene behavior scale have been approved as reliable. **Results**: This study discovered a significant relationship between health literacy and vulva hygiene practices (p-value= 0.05). Furthermore, 46% of the subjects have adequate health literacy, whereas 58.8% practice intermediate vulva hygiene activities. **Conclusion**: Proper health literacy can impact how teenage girls clean up their vulva. Researchers propose that young women can improve their vulva hygiene by seeking information, undergoing therapy, and consulting with healthcare providers.

Keywords: adolescents, health literacy, vulva hygiene

INTRODUCTION

The current adolescent population is increasing rapidly and should be a common concern. Based on data from the World Health Organization (WHO), the total adolescent population is around 16% of the world's population of 1.2 billion, with the largest distribution of adolescents on the Asian continent totaling 650 million (Organization, 2016). Based on data from the Central Statistics Agency (BPS), the number of adolescents in Indonesia is 46 million people or 17.2% of the total population (Statistics., 2019). A high percentage of adolescents in Indonesia must follow the provision of reproductive health education to prevent adolescents from neglecting reproductive health which results in harm to themselves (Senja et al., 2020). Reproductive health is a condition of physical, spiritual, social, economic well-being not only free from disease or disability but in all matters pertaining to its reproductive system and functions (Yusuf, 2021). The youth reproductive health is an important issue of the Sustainable Development Goals (SDGS), the world's countries having agreed to form the Reproductive Health Commission (Zulfuziastuti & Satriyandari, 2017).

The female reproductive organs will function properly during the fertile period, which in women is in the age range of 14 to 49 years. At the fertile age, women must be able to maintain the hygiene of the reproductive organs, because at this fertile age, the humidity of the female reproductive organs increases so that fungi, germs or bacteria can easily develop and enter the vagina (Purnamasari & Hidayanti, 2019). Infection by germs, or bacteria that enter the vagina can increase the risk of reproductive organ infections (Bitew et al., 2017).

In 2007 the Centers for Disease Control and Prevention warned that youths aged 15 to 24 are susceptible to

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reproductive tract infections (RTIs), which was reported by the WHO data survey of several countries in 2010, with a 35% to 42% ratio. About 1 million women worldwide suffer from genital system infections every day, and more than 1 million reproductive organ infections spread daily (WHOO, 2016). Data from Indonesia show that 43.3 million youths aged 15 to 24 have poor hygiene habits, which cause an increase in the number of reproductive organ diseases in teenagers (Surmiasih et al., 2019).

"Vulva hygiene behavior," or cleaning the vulva, or external female organs, is a habit that is carried out to prevent infection and maintain health. (Berliana, 2018). What young women should care about is the cleanliness of daily clothing, the personal hygiene care that is done by washing the vulva (vaginal lips) carefully in the right direction and using clean water and soap in the genital area after every urinating, bathing and using a dressing that is soft, well absorbing, and contains no allergens (Butar-Butar, 2016). Habits of hygiene in the reproductive organs begin as an effort to protect one's health, because it has a very important role to prevent infection in the reproductive organs (Rosdiana & Satriyandari, 2014).

Health literacy, or the ability to access, understand, and use health information and services to make decisions about their lives in the context of disease prevention or health promotion to maintain or improve their health status, is intrinsically linked to good and appropriate behavior for maintaining genital organs (Sørensen et al., 2012). One of the tenets of health promotion, which is regarded as one of the objectives of the public health system in this century, is health literacy. Enhancing one's health also heavily depends on health literacy. A healthy lifestyle choice, illness prevention, and obtaining knowledge about the best medical care and treatment are all influenced by health literacy (Berkman et al., 2011). According to the WHO, achieving the health-related Sustainable Development Goals (SDG) requires a strong emphasis on health literacy (WHO 2017). Because it can help people maintain or enhance their health, health literacy is vital. A person may make risky health decisions due to a variety of circumstances, such as not participating in health promotion initiatives or early detection or disease preventive efforts (Apfel & Tsouros, 2013).

The National Population and Family Planning Board (2014) states that adolescents are especially vulnerable to the issue of low knowledge about sexuality and reproductive health. According to earlier studies, 46% of teenagers struggle with reading. Conversely, 22% believe that teenagers are given confusing health information (Manganello, 2008). According to other surveys, 12.8% of young people struggle with their health literacy (Syecha, 2016). People who are not well-read on health have a harder time understanding health issues. (Kim & Lee, 2016). Individual literacy skills play a major role in an individual's ability to read and understand health-related content (Shi et al., 2017). Individuals who have reading skills will easily understand any information obtained; therefore, health literacy in each individual is very necessary to know (Sabil & Anisa, 2021). A health literacy of correct vulva hygiene behavior should be given to youths to prevent risk of infection in the genitalia because of improper behavior in their maintenance (Berliana, 2018). In order to improve general health, reduce infections and problems, and promote sexual and reproductive health, research on health literacy about proper vulva cleanliness practice is crucial. It can help influence clinical practice guidelines, public health campaigns, and educational programs that give people the power to take charge of their genital health.

The results of the literature also indicate that few studies have been made

about the relation of health literacy to behavioral vulva hygiene in female students. Therefore, this study aim to examine health literacy and vulva hygiene behavior among female students.

METHODS

Research design and sample

This research employs a cross-sectional technique, a descriptive design, and a quantitative approach. A study methodology known as the cross-sectional approach aims to gather information regarding observations made in a single unit and applied to all variables simultaneously. Two variables are taken into account in this study: vulva hygiene habits and health literacy among female students in SMAN 2 Padalarang, West Java. Potential causes of bias in research design can be reduced by clearly identifying study aims and hypotheses, and selecting a representative sample using random stratified sampling. By merging these efforts, researchers hope to decrease bias in the study.

The sample based on the Slovin calculation obtained a minimum sample of 289 students with the inclusion criteria being female students classes X, XI, and XII, exclusion criteria are students who are unwilling to be respondents. This study used stratified random sampling. Sample calculations are randomly selected through the Spinning Wheel website. The names were taken from the college presentations that were then loaded onto the Spinning Wheel website to know the name of the selected respondents, and then the sample selected as the respondents were entered on the sheet. Once students were selected, the researcher entered them into a group WhatsApp chat. The analysis of this study comprises 289 people who gave their informed consent to take part in the research.

Measurement

A self-administered questionnaire was delivered by the researcher to the participants. The questionnaires, including demographic data, health literacy and vulva hygiene behavior, will be explained in the following parts: Health literacy was assessed by HLS-EU-16Q-Indonesia. This instrument contains 16 questions with multiple subdomains including searching for the health information of four compounds (q1, q2, q8, q13), understanding the health information of six compounds (q5, q11, q15), assessing health information as three questions (q5, q11, q16) and applying health three questions (q6, q7, q12). The study used an HLS-EU-16Q questionnaire adopted from AHLA Indonesia as the official license holder of the questionnaire and which has been used in Indonesian versions. It scores on a scale of 0-1 where 0 is very hard, 0 is hard enough, 1 is easy enough, 1 is easy. The scores are categorized as inadequate health literacy (0-8), problematic health literacy (9-12), and sufficient health literacy (13-16) (Nurjanah & Rachmani, 2014). The instrument has conducted a validity test 0.490-0-0.886 and the researcher conducted reliability with a Cronbach's alpha of 0.947.

Next, vulva hygiene behavior was assessed by a questionnaire consisting of 26 questions. This questionnaire uses a Likert scale. The score is categorized as poor = $x < 52$, moderate = $52\ x < 78$, and good= $x < 78$ (Yani et al., 2022). This instrument has conducted a validity test and found items correlated 0,412-0,793, and the reliability test's Cronbach's alpha was 0.688 which indicated strong validity reliability and able to be used for research. The researcher has been permitted to use these two questionnaires. The research outcome can indicate sufficient health literacy is linked to correct vulva hygiene behavior.

Data collection procedure

In order to gather primary data for the current study, respondents were given Google Form surveys. Data were gathered at a public high school in Bandung Barat,

Indonesia, between April and May of 2023. After receiving approval from the Institutional Review Board (No. 001/USTB/Etik/Has./IV/2023), eligible participants were asked to confirm their voluntary participation by answering a yes-or-no question. Eligible individuals were asked to review the question and then complete a self-assessment questionnaire. In addition, the data from the respondents were entered by the researcher into computer programs for processing and analysis.

Data analysis

Every data analysis was performed using SPSS for Windows. Statistical methods are essential for dealing with missing data. This study used complete case analysis (CCA), in which only cases with complete information across all variables are included for analysis. However, this study contains no missing data. First, the researcher used descriptive statistics (frequency distributions and percentages) to summarize data on health literacy assessments, vulva cleanliness behaviors, and demographics. Additionally, the age's mean and standard deviation were provided. Using the Chi-square test ($p < 0.05$) in bivariate analysis, the association between vulva hygiene behavior and health literacy was assessed. The α-level was set at 0.05 and statistical significance is implied if the two-sided ρ-value is less than or equal to 0.05.

RESULT

According to Table 1, a total of 289 students responded to the survey questions for the study; 98 students from classes X and XI, which had an average age of 16.8 years (standard deviation [SD]= 1.03); over half of the respondents (35.3%) were 16 years old; 36% had previously received health information about vulva hygiene; 67.3% had received information from the internet; and the majority of respondents said they did not experience any pain when urinating. Furthermore, 46% of respondents had adequate health information regarding vulva hygiene, and 58.8% of respondents performed intermediate vulva hygiene.

Table 1. Respondent characteristics, health literacy and vulva hygiene behavior among female students

Variable	n (%)
Age (Mean, SD)	16.8 (1.03)
15 years old	28 (9.7)
16 years old	102 (35.3)
17 years old	88 (30.4)
18 years old	60 (20.8)
19 years old	9 (3.1)
20 years old	2 (0.7)
Education/class	
X	98 (33.9)
XI	98 (33.9)
XII	93 (32.2)
Vulva hygiene information	
Yes	104 (36)
No	185 (64)
Source of information	
Healthcare workers	15 (14.4)
Internet	70 (67.3)
Friends	5 (4.8)
Parents	8 (7.7)
Other	6 (5.8)
Complaints of pain in urinating	
Yes	54 (18.7)
No	235 (81.3)
Health literacy	
Sufficient HL	133 (46)
Problematic HL	117 (40.5)
Inadequate HL	39 (13.5)
Vulva hygiene behavior	
Moderate	170 (58.8)
Good	119 (41.2)

Table 2 presents the association between health literacy and the vulva hygiene behavior of teenage females, with a p-value of 0.05, indicating that vulva hygiene behavior determined by sufficient health literacy shows adolescent girls

practice vulva hygiene in a good and moderate category. Conversely, as health knowledge declines, teenage girls' vulva cleanliness practices also tend to decline.

Table 2. The association between health literacy and vulva hygiene practices among female students (95% confidence interval)

Health literacy	Vulva hygiene behavior				p-value
	Good		Moderate		
	n	%	n	%	
Sufficient	64	48.1	69	51.9	0.05
Problematic	44	37.6	73	62.4	
Inadequate	11	28.2	28	71.8	

DISCUSSION

Health literacy

According to the results, 133 respondents (46%) had restricted literacy (40.5% having problematic literacy and 13.5% having inadequate reading), while 156 respondents (13%) had good or high health literacy. The ability to access, interpret, and comprehend healthcare information to make wise decisions about one's own health is known as health literacy. Individuals who struggle with information comprehension may find it challenging to distinguish between information that is beneficial to their health and that is not, which may further complicate their decision-making about what constitutes healthy behavior (Sabil & Anisa, 2021). One important factor that influences and determines an individual's health and use of healthcare services is health literacy (Garcia-Codina et al., 2019).

Skills including document interpretation, prose reading and writing, numeracy (using numerical data), and oral literacy (effective speaking and listening) are all included in health literacy (Sheridan et al., 2011). The study's questionnaire results indicate that a number of statements characterize an individual's health information literacy: 83% of respondents can locate medical assistance when ill, 86% can comprehend what a doctor says, 96% can follow a doctor's instructions or a pharmacist's advice on how to take prescription medications, and 87% can comprehend information from the media about improving one's health. Nevertheless, it was found that 67% of people cannot identify when they need to see another doctor, 49% cannot determine the veracity of health information they receive from the internet media, and 57% cannot choose how to prevent diseases based just on information they receive from the media. This is in line with a recent survey that found that 28% of respondents decided to use health information from the media to protect themselves against diseases, and that 40.2% of respondents said it was difficult to believe the health information they obtained from the media (Nurjanah et al., 2016).

Previous studies have shown that an individual's reading level can change as they age (Berens et al., 2016). The age range of survey participants is 15–20 years old. Manganello reports that up to 22% of teenagers think it's hard to understand the health information that's given to them, and 46% of them have bad reading skills (Manganello, 2008). Teenagers are thought to have the most capacity for absorbing information, and this is a crucial period for developing health literacy. Therefore, evaluating these younger populations' health literacy levels and filling in any gaps is one way to meet the needs in health literacy (Budhathoki et al., 2019; Wang et al., 2014).

Additionally, literacy rates are influenced by the factor of health information accessibility. The internet makes knowledge about reproductive health widely available, and the types and amounts of information being disseminated are growing (Budiono & Sulistyowati, 2013; Suka et al., 2015). The study has

obtained data that the sources of information obtained by the respondents show most of those of 67.3% or as many as 70 respondents get information from the internet. However, the study still results in a majority of respondents (64%) who were not exposed to information about the behavior of the vulva hygiene. There are several factors why the respondents were not exposed to information about reproductive health. One reason for responders' lack of exposure is assessing that reproductive health services do not matter because the individual has free access to information through the internet (Arifah & Sharfina, 2019).

Creating various media can help solve a wide range of informed problems, but the information available on the internet is still not necessarily the truth. Therefore, it is expected that adolescents can use existing information wisely, effectively and efficiently and have the skills to utilize information that is supported by the information literacy ability of reproductive health (Kustin, 2022). In order for respondents to select which information to utilize when accessing reproductive health information on the internet, proper information also needs to be justified by people who are competent about reproductive health, such as parents or healthcare professionals. With the correct knowledge, respondents can enhance their vulva hygiene practices and strengthen their defenses against illness.

Vulva hygiene behavior

Vulva hygiene is a series of appropriate actions taken by women to protect their external reproductive organs (Humairoh et al., 2018). According to the survey, 170 participants, or 58.8%, engaged in moderate vulva cleanliness. In a prior study, Hubaedah discovered that 63.3% of teenagers had poor vulva hygiene habits (Hubaedah, 2020). Additionally, a number of statements describe the daily vulva hygiene practices of the participants, which are based on the results of the study's surveys. Based on the questionnaire, as many as 31.5% of participants in the study reported regularly using menstruation tights as underwear. Tight underwear may contribute to the growth of germs and fungi in the vaginal area by raising the humidity in the genital environment of women. Genital organ infections are made more likely by bacteria and fungi that grow in the female area. To combat this, underwear should be changed at least twice a day and comfortable, sweat-absorbing materials like cotton worn to preserve feminine hygiene and wellness. In spite of the fact that the amount of blood absorbed by the pads was still little, 49.5% of respondents seldom changed their pads for four hours, and 40.5% seldom changed them after urinating or defecating, which may increase the risk of urinary tract infections. Of the respondents, 29.1% seldom cleaned their toilet lids with tissue before using it.

Urinary tract infections, allergies, inflammation, vaginal discharge, and genital skin irritation can all be brought on by poor vulva care (Rosdiana & Satriyandari, 2014). Adolescent girls and women across many cultures engage in dangerous behaviors which include frequent vaginal douching, the use of very absorbent tampons, the introduction of filthy objects into the genital canal, and improper hand washing (Hamed, 2015). An infection of the urine could result from improper vulva cleanliness. As many as 18.7% of respondents reported having soreness in their urine, which is one of the indications of a urinary tract infection. Urinary tract infections can be brought on by E. coli bacterium. Since E. Coli bacteria can easily proliferate on toilet seats and are present in human excrement, it is recommended to wipe the toilet lids before using the facilities, change the pads every four hours, and change the pads after urinating and defecating to avoid infection (Srigede et al., 2019). Respondents exclusively gathered information from the

internet about the state of reproductive health; research participants in the field did not receive this information. Rarely is reproductive health discussed in public in society. It could be awkward for people to talk about this in public. A lot of people are afraid to bring up a delicate subject with an adolescent because of social and cultural expectations. Adolescent girls usually don't know enough about their genital health to take good care of themselves, which leads to bad habits (Suhasini & Chandra, 2017). One study found that having a variety of knowledge sources leads to a more thorough understanding (Hubaedah, 2020). A prior study found that 92% of teenagers who had encouragement from their professors behaved well in terms of personal hygiene (Nurulicha, 2019). Educating individuals on genital health behavior is crucial for preventing reproductive health issues.

Environmental factors also include the amenities and infrastructure that support good vulva hygiene practices among teenagers; the absence of these resources make it challenging for girls to practice good vulva hygiene. It should be noted that inadequate supply chains and facilities for hygienic practices are the primary obstacles to genital cleanliness behavior (Keatman et al., 2018; Wihdaturrahmah & Chuemchit, 2023). Schools provide facilities like as toilets, buckets, ladles, and tap water to encourage good vulva hygiene practices. However, the children's restrooms do not have toilet paper or soap available for cleaning genitalia or toilets. The conditions at the school restroom are similarly unhygienic, with buckets and ladles covered in moss and filth that resembles sand in a bucket of water. Sufficient infrastructure and amenities could motivate participants to practice vulva hygiene. Other research indicates that enabling variables have an impact on an individual's behavior, which is reflected in the accessibility of infrastructure and supporting services (Darma et al., 2017). According to the study, providing children with complete, sanitary amenities and infrastructure such as tissue and soap in school restrooms will encourage appropriate vulva cleanliness practices.

The association of health literacy with vulva hygiene behavior

Among female students, there is a connection between vulva hygiene practices and good literacy. In addition, the study discovered that 73 participants had moderate vulva hygiene practices and low health literacy. Inflammation, allergies, skin irritation, urinary tract infections, and poor genetic hygiene can all be avoided with good vulva habits (Rosdiana & Satriyandari, 2014). The improvement of reproductive organ hygiene and health is largely dependent on health literacy; teenage females who have greater levels of health literacy also tend to practice better vulva hygiene. This is in line with studies by (Berkman et al (2011) which show that health literacy affects people's decisions to lead healthy lives, take preventative measures against illnesses, and look for information about appropriate medical care and treatment. More reliable than any other socioeconomic characteristic as a predictor of health, according to other studies, is health literacy (Zhang et al., 2016). Sørensen et al. (2012) assert that preserving genital organs necessitates knowledge of and access to health resources and information. This enables people to maintain or improve their health state by making informed decisions.

Age is one of the many elements that determine health literacy and can also have an impact on one's reading level (Berens et al., 2016). The age range of the survey participants, defined as adolescents, is 15 to 20 years old. According to earlier studies, 22% of teenagers said it was hard to understand the health information that was provided to them, and 46% of teenagers said they didn't read well (Manganello, 2008). Moreover, education is a significant factor in the development

of health-related knowledge and abilities; the degree of education can foster personal growth (Nutbeam, 2015). Middle school students who are effectively at the halfway stages of their education are the survey respondents. The literacy rate increases with an individual's level of education. This speaks to a person's ability to acquire and obtain information about medical treatment, to grasp and apply health-related information, and to comprehend preventive measures (Wahyuningsih, 2019).

The National Population and Family Planning Board (2017) mentions that adolescents are particularly vulnerable to poor reproductive health issues. In the study, there are also statements that describe the problem of respondent's independence in correct behavior of the vulva hygiene as well as an assessment of the problem of respondents in making right decisions regarding the behavior of the vulva hygiene. Poor individual health literacy is due to ignorance and understanding of health (Kim & Lee, 2016). According to Khairunnisa (2017), teenagers continue to have a poor self-awareness e in what should be done and what should not be done, while their immature thinking patterns mean adolescents fail to make the right decisions in their lives.

Three factors affect Lawrence Green's theory of behavior: reinforcing, enabling, and predisposing influences. A person's predisposition might change their behavior based on their knowledge and habits, for instance, if they learned the proper way to conduct vulva hygiene (Notoatmodjo, 2010). Knowing is the basis for understanding; it happens when people see something. The eyes and hearing are among the sense organs via which most people learn. One's cognitive domain (overt conduct) or knowledge greatly influences one's actions. Someone can carry out vulva hygiene procedures correctly if they are familiar with them. A person who consistently maintains good vulva hygiene would therefore have formed a habit. Previous studies have demonstrated that an individual with a solid understanding of health can enhance positive health-related behavior, and that knowledge-based behaviors have a longer lifespan than ignorance-based ones (Yuliawati et al., 2021). Next, the tools and infrastructure that facilitate behavior may either contribute to good behavior. For instance, a person would clean their genitals with clean water if clean water was available.

Also, a person's exemplary behavior can be a reinforcing factor that strengthens behavior. A role model is like a friend, family, or community leader. Schools can be a role model by administering students correct knowledge of the behavioral vulva hygiene. The school where the youth in this study attend has never offered any enlightenment on the health education of the reproductive organs. Health education or counseling on health literacy is important to provide because it can increase a person's knowledge and understanding of health so that a person's health literacy can increase. Reproductive health education should involve health workers, so that the information about reproductive health provided can be confirmed and the information provided can be easily understood so that it can improve vulva hygiene behavior.

CONCLUSIONS

In summary, this present study found almost half of adolescents have sufficient health literacy, and over half of adolescents have moderate vulva hygiene behavior. There is relationship between health literacy and vulva hygiene behavior. It suggests schools need to promote continuously and motivate students the importance reproductive health and create a promotion model to afford a better understanding of reproductive health and thus, make adolescents healthier. This study is limited to local high schools, so it

cannot be generalized to other settings. Future research needs to explore other variables related to health literacy such as self-awareness and developed reproductive health education to increase students' health literacy.

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