Health Literacy and Utilization of Reproductive Health Services Among High School Students

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ABSTRACT

***Background**: Utilization of reproductive health service may improve adolescent health and prevent reproductive health problems in adulthood. However, the proportion of adolescents who uses the available services remains low. Many factors influenced the services use among adolescents. The relation of adolescents' health literacy and reproductive health service use was not fully understood. This study intended to examine the relationship between health literacy and use of reproductive health counseling service among high school students in one school in Banyumas Regency, controlling other variables (knowledge, acceptability, age, and sex).*
***Method**: A cross-sectional study was conducted in March-April 2021 in one high school (SMA Negeri 4 Purwokerto), Banyumas regency, Central Java Province. Samples were 170 students purposively chosen from the first and second grade who were willing to fill the self-administered online questionnaire. Data of health literacy were collected using eHEALS questionnaire. Other data were obtained using valid and reliable self-design questionnaires. Multiple logistic regression was deployed to analyze the relationship between variables.*
***Results:** Health literacy had a significant relationship with the use of reproductive health services among adolescents. The probability of the reproductive health counseling service was doubled if they had a good health literacy level among students who had high acceptability toward the service and were female with an OR value of 2.1 (95% CI 1.01-4.49). In conclusion, adolescent's health literacy level is associated with the utilization of reproductive health services. Further research is needed to confirm the association between the variables in more extensive settings.*

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Article History
Received 16 September 2021
Revised 28 January 2022
Accepted 12 May 2022
Available Online 31 May 2022

Keywords
Exclusive breastfeeding
Adolescents
Reproductive health service
Health literacy
Health service utilization

DOI
10.14710/jpki.17.2.79-85

INTRODUCTION

One of the action programs in the International Conference Population and Development (ICPD) Cairo 1994 is providing reproductive health services and education for adolescents in each country.[1] Research shows that providing comprehensive sexual education to adolescents reduces risky sexual behavior.[2] In addition, access to reproductive health services prevents adolescents from experiencing unwanted pregnancies and being infected with sexually transmitted diseases.[1] The data show that adolescents in various parts of the world, especially in developing countries, are threatened with multiple problems that reduce their quality of life in adulthood. A small number of Indonesian teenagers also experience the same problem. The 2017 Indonesian Demographic and Health Survey (IDHS) results show that less than half of adolescents who engaged in premarital sex used a condom in their most recent sexual intercourse.[3] As a result, the proportion of people living with HIV in adolescence was relatively high. Data from the HIV AIDS information system show that there is an increase in the number of adolescents infected by HIV from year to year.[4] Moreover, the unwanted pregnancy incidence reported by young women in the 2017 IDHS also reached 12%.[3]

In Indonesia, efforts to prevent adolescent problems have been carried out by providing adolescent reproductive health services and education, e.g., *Pusat Informasi dan Konseling Remaja* (PIK-R) or Adolescent Counseling and Information Center (ACIC) program that can be accessible from the *Generasi Berencana* (Genre) program. ACIC, a national program started in 2000, aims to provide education through peer counselors about *TRIAD KRR* (sexuality, HIV/AIDS, and drugs) in adolescents. Currently, the number of ACICs is around 23,579 spread across 34 provinces in Indonesia.[5] However, the ACIC program in each implementing unit is diverse. There are three classifications for the ACIC service quality provided in schools, namely "*Tumbuh*," "*Tegak*," and "*Tegar*".

ACIC units that provide youth counseling facilities are classified as "*Tegak*" and "*Tegar*". The proportion of the units on youth counseling facilities is estimated to be relatively small. Furthermore, the coverage of youth who use counseling services is still not widely known. Data from the 2017 IDHS show that only about 16% of young women knew about ACIC as a reproductive health information service; therefore, ACIC is assumed to be relatively inaccessible. [3] Research by Nurmansyah et al. (2012) shows that only 4.4% of 15.4% who knew about reproductive health institutions had visited them.[6] ACIC service utilization by adolescents is noted as limited although some studies have suggested that adolescents who engaged in ACIC activities and received health education improved their sexual behavior and reproductive health knowledge.[7,8]

Many factors influence reproductive health service utilization. Previous research generally explores the factors that influence health service utilization in a theoretical framework of demand and supply factors that affect access to health services. Demographic characteristics such as age, gender, and knowledge about the health services affect the utilization of health services. [9,10] In addition, several studies have explored the factors through four access dimensions: accessibility, availability, affordability, and acceptability. [11] Among the four access dimensions, acceptability is associated with the use of ACIC services.[12] Measuring the affordability and accessibility aspects is challenging since the ACIC services are free of charge, and no students have to pay to utilize the services. Accessibility is frequently predicted by geographical distance from home to the health facility. As the ACIC services are provided in schools, all students could access the service, regardless of distance from home. With the situation in mind, the determinant of the service's utilization was presumably contributed to by factors other than accessibility and affordability. A previous study shows access to Adolescent Friendly Health Service (AFHS) in Surakarta, Central Java found that AFHS was significantly influenced by users' knowledge and perceived need for the service.[9]

Health literacy effects have not been widely studied through the lens of reproductive health service utilization among adolescents in Indonesia. A literature review shows that health literacy is associated with health-promoting behaviors in adolescents, for example, seeking health information, adherence to medication, no smoking, engaging in physical activity, having a good dietary habit, and safe sexual behavior.[13] Having a good level of health literacy increases health service utilization. The ability to make good health decisions relies on an understanding of accessible health information, as well as risk factor assessment that exists in oneself to maintain health.[14] The health literacy factor and its influence on adolescent reproductive health decisions are still not widely known. Due to this, this study is dedicated to examining the relationship between adolescent health literacy and the use of ACIC reproductive health counseling services by controlling other factors, namely age, gender, acceptability to the service, and knowledge about ACIC services.

The coverage of ACIC use was relatively small, but none of the average national-level data have been given. Banyumas, one of the districts in Central Java, had a large coverage of ACIC use. Preliminary data show that Banyumas had 84 ACIC program units, of which 17 were carried out in public or religious schools. One of these units, *PIK R Bahagia*, was held in SMAN 4 Purwokerto, located in the central area of Banyumas. The school was selected for this study since this ACIC unit had routinely offered reproductive health counseling. The ACIC program at SMAN 4 Purwokerto has entered the "*Tegak*" stage even though only a tiny proportion of their students utilized the reproductive health counseling services. Preliminary study data showed that about 5-9 students used the counseling monthly in 2019. Based on the data, this study continued examining the relationship between student health literacy and use of reproductive health counseling services at SMAN 4 Purwokerto.

METHOD

A school-based cross-sectional study was conducted in Banyumas in March-April 2021. The study population was 721 first and second grade students at SMAN 4 Purwokerto, and the purposively selected samples were only 170 non-ACIC member students who filled the online questionnaire. The Faculty of Medicine of Universitas Muhammadiyah Surakarta Health Research Ethics Committee has granted the Ethical Clearance Letter No. 3275/B.1/KEPK-FKUMS/I/2021. The sample size was identified using the Lemeshow formula and exceeded the minimum size. The data collection was done online during the COVID-19 pandemic. Some instructions were given to ensure students understood the questions. The appropriate answers to the online questionnaires were also provided.

The independent variables include age, sex, acceptability toward reproductive health counseling services, knowledge about the services, and health literacy. The research instrument was a self-designed questionnaire developed based on the theory/literature review in Guttman scale (yes or no). Acceptability questionnaires consist of ten questions on acceptability toward the peer counselor program; the counseling topics; the counselor's gender, knowledge, and attitude; and the counselor's

delivery of information. Knowledge was measured from 11 questions on the ACIC program, its objectives, the reproductive health counseling services, benefits, and the counseling schedule. Acceptability and knowledge are measured from the total average score. The research employed a valid and reliable self-administered questionnaire.

The adolescent's health literacy was measured using eHEALS, an instrument developed by Norman (2006) to measure eHealth Literacy. Health literacy is associated with the ability to seek, find, understand, and appraise health information from electronic sources, and apply the knowledge gained to deal with a health problem.[15] The Indonesian eHEALS translated by Wijaya and Kloping (2021) was used in the data collection. The Cronbach alpha value was 0.91.[16] eHEALS consists of eight questions in the Likert scale. The scores range from 8-40. Health literacy is measured from one's score compared to the overall average score. Use of reproductive health counseling services was measured using four questions in Guttman scale (yes or no) on the users' experience of using the counselling within the last two years accompanied by a peer counselor. A multivariate analysis was conducted using multiple logistic regression with a 95% confidence interval to predict the influence of health literacy on the use of reproductive health services controlled by age, gender, acceptability, and knowledge. The purposeful selection sample method was used to develop a multivariable model.

RESULTS AND DISCUSSION

Table 1 displays information about respondents' characteristics based on gender, age, access to information on the Internet, and engagement in reproductive health conversation with influential people. Almost three-quarters of the respondents were women and the age group of 15-16 years. More than three-quarters had searched for reproductive health information on the Internet and discussed about it with influential people such as parents and friends. While, only about a third of the respondents utilized the reproductive health counseling service. Results show a slightly bigger number of the respondents had high acceptability toward the services. Sixty percent of the respondents had good knowledge about the service, and about half of the respondents had low health literacy.

Table 1. Respondents' characteristics and univariate analysis

Variables	Frequency (n = 170)	Percentage (%)
Sex		
Male	58	34.1
Female	112	65.8
Age		
15-16	127	74.7
17-18	43	25.3
Search for reproductive health information on the Internet		
Yes	131	77.1
No	39	22.9
Engagement in reproductive health discussion with an influential person[a]		
Yes	112	65.8
No	58	34.1
Utilize reproductive health counseling services		
Yes	61	35.8
No	109	64.1
Acceptability		
High	96	56.5
Low	74	43.5
Knowledge about the service		
High	102	60
Low	68	40
Health literacy		
High	84	49.5
Low	86	50.5

Note: [a] Influential person: teachers, parents, and friends

Table 1. Analysis of health literacy, acceptability, and knowledge about reproductive health counseling services

Variable	Reproductive Health Counselling Service Utility (n = 170)				P-Value	OR	OR95%CI
	Yes		*No*				
	n	*%*	*n*	*%*			
Acceptability					0.001		
High	53	55.2	43	44.8		10.2	4.40-23.47
Low	8	10.8	66	89.2			
Knowledge					0.040		
High	43	42.2	59	57.8		2	1.03-3.9
Low	18	26.5	50	73.5			
Age					0.344		
15-16	43	33.9	84	66.1		0.71	0.35-1.44
17-18	18	41.9	25	58.1			
Gender					0.003		
Female	49	43.8	63	56.3		2.9	1.42-6.22
Male	12	20.7	46	79.3			
Health literacy					0.010		
High	38	45.2	46	54.8		2.3	1.19-4.30
Low	23	26.7	63	73.3			

Table 2 explains cross tabulation, chi-square test results, and the variables' odds ratio (OR). Acceptability, knowledge, sex, and health literacy were associated with use of reproductive health counseling services ($p < 0.05$). Acceptability had the highest OR value (OR = 10.2; 95% CI = 4.4-23.4) among knowledge, gender, and health literacy.

In the first multivariable model, all the variables were included. The variable selection in the final model was developed to explain the effects variable of health literacy after controlling other variables based on the theory/literature review and multicollinearity between independent variable groups. The final model was selected based on the Akaike Information Criterion (AIC), Bayesian Information Criterion (BIC), and Pseudo R2 values.

Table 3 informs the final model that explains the relationship of health literacy with use of reproductive health counseling service after controlling other variables (sex and acceptability). The final model selection was chosen because it had the smallest AIC and BIC values and the highest Pseudo R2 value. The model's quality in predicting the use of reproductive health counseling service is seen from the pseudo R2 value (0.219). This model explains about 21.9% of the variation in the use of reproductive health counseling services. The remaining proportion is described by another factor outside the variables. However, the goodness analysis of fit test with ($p = 0.625$) concludes that this model had good calibration and accuracy in predicting the use of reproductive health counseling services.

Table 2. Multivariable model for identifying determinants of the use of reproductive health counseling services using a logistic regression analysis

Variables	P-Value	OR	OR95%CI
Health literacy	0.047		
High[er]			
Low		2.1	1.01-4.30
Acceptability	0.001		
High[ref]			
Low		8.7	4.40-23.47
Gender	0.012		
Female[ref]			
Male		2.9	1.42-6.22
AIC:181.41; BIC: 193.94; Pseudo R^2: 21.9%			

Note: [ref] Reference category in the multiple logistic regression test

Table 3 shows students who had low health literacy risk doubled in OR value (2.1) with a 95% CI (1.01-4.30) tend to not utilize reproductive health counseling services. Other factors such as acceptability and sex might affect them to decide. Eight- and three-times higher risks occur to the respondents who had low

acceptability and were male.

The utilization of reproductive health counseling services among adolescents is determined by health literacy level, such as acceptability. Female adolescents had a higher chance of using the service as they had higher acceptability. A previous study stresses that adolescents with good health literacy levels may perform health-promoting behaviors such as not smoking, going on healthy diet, and being physically active.[13] Another study on health literacy and its behavioral outcome conducted by Park et al. (2017) mentions that students with poorer health literacy had less favorable health behaviors, such as unhealthy diet, substance use, and risky sexual behavior.[17] This present study contributes to the existing literature from the application perspective. The need for reproductive health information might have a driving force for individuals to access health services. Most adolescents usually search for sexual and reproductive health information on the Internet,[18] and most of them had a good level of health literacy.[19] As part of their critical thinking about the health information, they may need to confirm the information's validity by asking another trusted source such as a health provider, teacher, or, most probably, a peer counselor[20] either schools or other places. The only reproductive health counselling at SMAN 4 Purwokerto is supported by a peer counselor.

A previous study in Taiwan suggests good eHealth Literacy increased online behavior of high school students towards health information seeking.[21] Given the results, having health literacy is important. Hence, further efforts should be made to improve adolescents' research skills in obtaining credible health information online. Previous studies suggest that health literacy programs integrated into school curricula have promising results to improve research skills.[17,22,23]

Apart from some insightful findings, we should consider some limitations in mind. Firstly, this study only used eHEALS designed for measuring electronic health literacy.[15] eHealth Literacy is the ability to seek, find, understand, and appraise health information from electronic sources and apply the knowledge gained to address or solve a health problem. This instrument did not measure other aspects of health literacy in general, thus not sufficiently addressing critical and interactive health literacy skills.[24] Future studies should use more than one health literacy instrument. Second, this present study used a cross-sectional approach in a small setting and non-probability sampling, meaning causal conclusions could not be made. Future research should focus more extensive settings using the probability sampling technique. Besides, this study did not describe challenges faced by ACIC in providing services during the pandemic which may impact the service coverage. Hence, future research could deepen the discussion on this topic too.

This study found that students with higher health literacy scores were more likely to utilize the services they accepted their need for reproductive health learning. Acceptability is the critical factor affecting the use of reproductive health services. [12,25,26] Based on the data, provider/counselor's patients and privacy/confidentiality information should be carefully considered during the consultation process. Adolescents tend to use health reproductive services if the health facilities have a welcoming and friendly ambiance. [25,27] In this present study, a high proportion of respondents perceived friendliness and confidentiality since the counselling was a peer-led intervention. Adolescent-friendly reproductive health services also rely on the quality of teachers' knowledge about reproductive health. However, most adolescents might experience feelings of shame and distrust, lack of confidence, distrust in sharing their reproductive health problems.[28,29]

Moreover, gender is associated with the use of reproductive health counseling service as well. Previous research affirms this finding that more female adolescents access RH service than males in Indonesia and other low or middle income (LMIC) countries. [9,10,30–32] However, males are actually at risk of reproductive health problems since they have a higher risk of engaging in risky behavior than females. [33,34] Females tend to perform preventive behaviors from risky behavior than males. [35] Interventions might be needed to encourage males to utilize reproductive health services in general.

CONCLUSION

Overall, this study found a small proportion of students who had utilized reproductive health services in the school. A good health literacy level could elevate acceptability toward the service among females. In conclusion, acceptability, knowledge, and gender affect the use of reproductive health services. Further research is needed to confirm the associations between the variables in more extensive settings using a probability sampling technique. School-based intervention is necessary to improve adolescents' health literacy, e.g., integrating health literacy programs into school curricula so that they are motivated to use the services.

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