Jurnal Berkala Epidemiologi
Volume 12 No 1. January 2024. 9 – 17
p-ISSN: 2301-7171; e-ISSN: 2541-092X
DOI: 10.20473/jbe.v12i12024.9 – 17
https://e-journal.unair.ac.id/JBE/index
Email: jbe@fkm.unair.ac.id / jbepid@gmail.com

Jurnal Berkala
EPIDEMIOLOGI
PERIODIC EPIDEMIOLOGY JOURNAL

ORIGINAL ARTICLE

THE DETERMINANTS OF REPRODUCTIVE HEALTH CARE BEHAVIOR IN ADOLESCENT: A CROSS-SECTIONAL STUDY

Determinan Perilaku Pemeliharaan Kesehatan Reproduksi Pada Remaja; Cross Sectional Study

Imelda Februati Ester Manurung[1], Afrona E. Lelan Takaeb[2], Jermias da Cruz[3]
[1]Department of Epidemiology, Faculty of Public Health, Universitas Nusa Cendana, Kupang 85001, Indonesia, imelda.manurung@staf.undana.ac.id
[2]Department of Epidemiology, Faculty of Public Health, Universitas Nusa Cendana, Kupang 85001, Indonesia, afrona.takaeb@staf.undana.ac.id
[3]Ministry of Health I, Caicoli-Dili 21000, Timor Leste, lopeslaly81@gmail.com
Corresponding Author: Imelda Februati Ester Manurung, imelda.manurung@staf.undana.ac.id, Department of Epidemiology, Faculty of Public Health, Universitas Nusa Cendana, Kupang, 85001, Indonesia

ARTICLE INFO

Article History:
Received, May, 4th, 2023
Revised form, June, 21th, 2023
Accepted, December, 27th, 2023
Published online, January, 26th, 2024

Keywords:
Health literacy;
Parental support;
Perceived benefits;
Sexual health

Kata Kunci:
Literatur kesehatan;
Dukungan orang tua;
Manfaat yang dirasakan;
Kesehatan seksual

ABSTRACT

Background: The quality of reproductive health during adolescence determines the quality of reproductive health in adulthood. The 2018 National Socioeconomic Survey found that 11% of adolescents were married before the age of 18, and 0.56% were married before the age of 15. Adolescent reproductive health issues continue to increase every year. **Purpose:** The study aims to analyze the determinants of reproductive health care (RHC) behavior in adolescents. **Methods:** This study is an analytic observational research using a cross-sectional design. The research was conducted at SMPN 20 Kupang City in 2022. The sample size are 82 students selected using a random sampling technique. The research variables are the characteristics of respondents, health literacy, parental support, teacher support, perceived vulnerability, seriousness, benefits, barriers, cue to act and RHC behavior. Bivariate data analysis used chi-square, and multivariate data analysis used logistic binary regression. **Results:** The results show that 57% of the respondents have a deficient reproductive health care behavior. The most dominant variable influencing RHC behavior was living with parents (PR= 4.86; CI= 1.22-19.27). Adolescents who live with their parents are 4.86 times more likely to do RHC compared to adolescents who do not live with their parents. **Conclusion:** These findings recommend the importance of optimizing the role of parents as peers in providing RHC education for adolescents. Parents who do not live with their children have to pay attention and remind their children to keep doing RHC.

ABSTRAK

Latar Belakang: *Kualitas kesehatan reproduksi pada saat remaja akan menentukan kualitas kesehatan reproduksi pada usia dewasa. Hasil Survei Sosial Ekonomi Nasional 2018 (Susenas) menemukan bahwa 11 % remaja*

How to Cite: Manurung, I. F. E., Takaeb, A. E. L., & Cruz, J. da (2024). The determinants of reproductive health care behavior in adolescent: a cross-sectional study. *Jurnal Berkala Epidemiologi*, *12*(1), 9-17.
https://dx.doi.org/10.20473/jbe.v12i12024.9-17

sudah menikah sebelum usia 18 tahun dan 0,56% menikah sebelum usia 15 tahun. Permasalahan kesehatan reproduksi remaja terus meningkat setiap tahun. ***Tujuan:*** *Tujuan penelitan menganalisis determinan perilaku pemeliharaan kesehatan reproduksi (PKR) pada remaja.* ***Metode:*** *Jenis penelitian observasional analitik dengan menggunakan rancangan cross sectional. Penelitian dilakukan di SMPN 20 Kota Kupang pada tahun 2022. Besar sampel sebanyak 82 siswa dengan menggunakan teknik random sampling. Variabel penelitian terdiri atas, karakteristik responden, health literacy, dukungan orang tua, dukungan guru, persepsi kerentanan, keseriusan, manfaat, hambatan dan isyarat untuk bertindak. Analisis data bivariate menggunakan chi square dan multivariat menggunakan logistic binary regression.* ***Hasil:*** *Hasil penelitian menunjukkan bahwa perilaku perawatan kesehatan reproduksi lebih banyak pada kategori kurang baik yaitu sebesar 57%. Analisis berdasarkan multivariat logistic regression diperoleh bahwa variabel yang paling dominan berpengaruh terhadap perilaku PKR adalah tinggal dengan orang tua (PR= 4.86; CI= 1.22-19.27). Remaja yang tinggal dengan orang tua 4.86 kali lebih tinggi melakukan PKR dari pada remaja yang tidak tinggal dengan orang tua.* ***Simpulan:*** *Temuan ini merekomendasikan pentingnya mengoptimalkan peran orang tua sebagai sahabat dalam memberikan edukasi PKR bagi remaja. Bagi orang tua yang tidak tinggal serumah dengan anaknya agar tetap memperhatikan dan mengingatkan mereka tetap melakukan PKR.*

INTRODUCTION

Adolescence is a period of transition from childhood to adulthood with an age range of 10 to 19 (1). Adolescence is prominent because in that age range, a child experiences a biological transition characterized by puberty, changes related to physical appearance and the attainment of reproductive abilities. In addition, an adolescent also experiences psychological or cognitive transition that reflects individual thinking as well as social transition related to adolescent privileges and responsibilities (2). During this transitional period, various issues related to reproductive health take place. Reproductive health is a state of complete physical, mental and social well-being. It is not only free from disease or disability but also in all matters related to the reproductive system, its functions and processes.

Worldwide, the population of adolescent boys increased by 16.30 % and girls by 13.70 % in 2019 (3). The adolescent population in Indonesia reaches 44,252,200 people, or approximately 16% of the total population (4). Issues that often arise in adolescents related to reproductive health include premarital sexual behavior, early pregnancy, abortion, venereal diseases, HIV and AIDS (5). A study conducted in 144 countries found that maternal mortality rate among teenagers aged 15-19 is 260 per 100,000 birth rates compared to South East Asia's 130 per 100,000 birth rates. Most of the death was caused by anemia and pregnancy complication (6). A survey that was conducted in four provinces, namely West Java, Central Java, East Java and Lampung, found that 46.20% of young women still thought that women would not get pregnant by just having sex once. Only 19.20% of young women were aware of the increased risk of contracting a sexually transmitted infection due to having more than one sexual partner (7). These data are in line with the increase in HIV cases in the age group of 20-24 which ranks second place based on age category (8). Pregnancy in adolescents may lead to the risk of causing death and also to school dropouts, loss of self-confidence and impaired mental health (9).

The 2017 Indonesian Demographic and Health Survey shows that 0.90% of young women and 3.60% of young men have had sexual intercourse (7). The 2018 National Socioeconomic Survey (Susenas) found that 11% of adolescents were married before the age of 18 and 0.56% were married before the age of 15 (10). A survey conducted by the Indonesian Family Planning Association found that 39 out of 100,000 adolescents in East Nusa Tenggara had given birth at the age of 15-19. In Kupang, 548 pregnant women were adolescents (11). This figure is higher than in Sikka District, with 400 pregnancies in teenager (12). As the capital city

of East Nusa Tenggara Province, Kupang City is believed by almost all parents around this province for its high school quality. Being away from parents has the risk of a lack of personal hygiene in teenagers.

Adolescents' issues often start from a lack of information, understanding, and awareness of behavior to implement proper reproductive health. Sari's study on Senior High School students found that almost 50% of them still do not sustain healthy reproductive behavior (13). Maintaining healthy reproductive behavior is determined by several factors, such as perceived vulnerability, seriousness, barriers, benefits and behavior in students can be factors in influencing reproductive health care (RHC) behavior (14). In addition, the support from parents and teachers are also necessary to be optimized (15). During middle school, students go through a phase of adolescence where they experience biological changes. It is paramount to educate them promptly to help them prepare for the impact of reproductive development Therefore, this study will examine the determinants of reproductive health care in middle school adolescents.

METHODS

A cross-sectional study to examine the determinants of reproductive health care in adolescents was conducted in August 2022 in Kupang, East Nusa Tenggara, Indonesia. The population of the study was 580 students of SMPN 20 Kupang, class VIII and IX. The sample size was calculated using a minimum sample size formula with a CI value of 95%. Based on this formula, the sample size was 82 respondents. The sampling used the random sampling technique. The determination of the samples was started by recording all students of SMPN 20 Kupang in VIII and IX classes in August 2022. Class VII was not included in the sample criteria because the students just enrolled in SMPN 20 Kupang. The sample size from VIII and IX classes was then calculated based on the proportional number of students in each class, resulting in the sample size from class VIII being 42 and the sample size from class IX being 40. After calculating the sample size, random sampling was conducted by selecting samples that met the inclusion criteria. This criterion ensured that only students who did not transfer were selected and had agreed to be respondents.

The research variables are the characteristics of respondents, health literacy, parental support, teacher support, perceived vulnerability, seriousness, benefits, barriers, cue to act and RHC behavior. The research variables were measured using a questionnaire. The characteristics of the respondents include age, sex, family income, parents' education, status of residence, and number of siblings. Each of the characteristics consists of two categories. The characteristic of age consists of 'less than 15 years old' and 'more or equal to 15 years old'. The characteristic of family income consists of 'less than or equal to Rp.1.950.000' and 'more than Rp.1.950.000'. Next, the characteristic of sex consists of 'male' and 'female'. The characteristic of education consists of 'lower or equal to middle school' and 'higher than middle school'. Lastly, the characteristic of the status of residence consists of 'living with parents' and 'not living with parents'.

The questionnaire to measure the variable of health literacy consists of 10 questions—a correct answer scores one, and an incorrect answer scores zero. Health literacy is considered adequate when the total score equals or exceeds 7 and inadequate when it falls below this threshold. The questionnaire for parental support and teacher support variables consists of eight questions. 'Yes' scores one and 'no' scores zero. Parental support and teacher support are categorized as good if the score is more than or equal to 7 and categorized as poor if the score is less than 7. The variables of perceived vulnerability and perceived seriousness consist of 4 statement items.

Meanwhile, the variables of perceived benefits, perceived barriers, and perceived cue to act consist of 3 statement items. Each statement item consists of 5 options, namely 'Strongly agree' scores 5, 'Agree' scores 4, 'Doubtful' scores 3, 'Disagree' scores two and 'Strongly disagree' scores one. A variable is categorized as good if the total score is more than or equal to 70 and categorized as poor if the total score is less than 70. RHC behavior is measured using 9 statement items. Each statement consists of 4 options, namely 'always' scores 3, 'often' scores 2, 'rarely' scores one and 'never' scores zero. Questions of RHC behavior consist of personal hygiene of reproductive organs, prevention and early detection of venereal diseases.

Data analysis involved univariable, bivariable and multivariable analysis. Univariable analysis was used to describe the frequency distribution of each variable. The chi-square test with a value of p

<0.05 was employed to analyze the correlation between each independent and dependent variable. Concurrently, in order to analyze multiple variables, the author used binary logistic regression. The significant variable was reported by p- value < 0.05, Prevalence Ratio (PR) and interval confidence 95%.

The validity and reliability tests of the questionnaire were conducted on 30 respondents. A statement item is valid if the corrected item's total correlation value is > 0.36 and reliable if the Cronbach alpha value is > 0.60. In order to avoid bias, the respondents were informed that the responses would be kept confidential and would not affect school grades. Research ethics clearance was obtained from the Ethics Commission of the Faculty of Public Health, Nusa Cendana University, Kupang, number 2022212 – KEPK on July 19, 2022. Informed consent was obtained from parents and school teachers.

RESULTS

Descriptive analysis in Table 1 below showed that 51% of the respondents are female, 80% are under the age of 15 and 54% have parents whose education is lower than senior high school. 47% of the respondents have a family income below Rp.1,950,000, and 67% live with their parents. The average of the respondents age is 13.89 years old. For the variable of health literacy, 60% is in the poor category, with an average value of 63.67. For the variable of parental support, both categories have the same percentage, namely 50%, with an average value of 68.87. The average value of the variable of teacher support is 69.48, and the teacher support is 69.48. For the variables of perception, 56% of the respondents have a good perceived seriousness, and 58% have a poor perceived cue to act. The highest mean value is found in the variable of perceived benefit, with 73.22%. The behavior of students in reproductive health care is predominantly in the poor category, namely 57%, with a mean value of 71.88.

Bivariable analysis using the chi-square test in Table 2 shows that there is a correlation between the variables of the status of residence (PR=3.88; CI=2.26-24.36; p=0.01), health literacy (PR=2.23; CI=1.70-11.22; p=0.03), parental support (PR=2.5; CI=1.87-12.52; p=0.02), teacher support (PR=2.30; CI=1.67-10.76; p=0.04), perceived benefits (PR=2.72; CI=1.10-6.72; p=0.04 and reproductive health care behavior. This is indicated by the value of p<0.05. The highest prevalence ratio value is found in the variable of residence status with 3.88. These results indicate that adolescents who live with their parents are 3.88 times more likely to do RHC compared to adolescents who do not live with their parents.

Table 1
Characteristics of Reproductive Health Care Behavior in Adolescents

Variable	Category	n	%	Mean
Characteristics of the student				
Sex	Male	40	49	
	Female	42	51	
Age	< 15 years old	66	80	13.89
	≥ 15 years old	16	20	
Parent's education	> Middle School	44	46	
	≥ Middle School	38	54	
Family Income	> 1,950,000	35	43	
	≥ 1,950,000	47	57	
Status of residence	Living with parents	55	67	
	Not living with parents	27	33	
Health Literacy	Good	33	40	63.67
	Poor	49	60	
Parental Support	Good	41	50	68.87
	Poor	41	50	
Teacher support	Good	40	49	69.48
	Poor	42	51	
Health Belief Model				
Perceived Vulnerability	Good	39	48	65.73
	Poor	43	52	
Perceived Seriousness	Good	46	56	67.74
	Poor	36	44	
Perceived Benefits	Good	40	49	73.22
	Poor	42	51	
Perceived Barriers	Good	37	45	71.89
	Poor	45	55	
Perceived Cue to Act	Good	34	42	70.10
	Poor	48	58	
RHC Behavior	Good	35	43	71.88
	Poor	47	57	

Variables with a p-value <0.25 can proceed to the multivariable analysis stage. The variables include residence status, health literacy, parental support, teacher support, perceived vulnerability, perceived seriousness, perceived benefits and perceived barriers.

The results of the multivariable analysis in Table 3 show that status of residence, health literacy, parental support, and perceived benefits correlate with RHC behavior in adolescents. Adolescents who live with their parents are 4.86 times more likely to have positive RHC than adolescents who do not live with their parents (APR= 4.86; CI= 1.22-19.27; p=0.02). Adolescents with good health literacy are 4.18 times more likely to do RHC (Adjusted PR= 4.18; CI= 1.12 - 15.55; p= 0.03). Adolescents with good parental support are 3.87 times more likely to have positive and do RHC than adolescents with poor parental support (Adjusted PR= 3.87; CI= 1.16-12.84; p= 0.02). Adolescents with good perceived benefits are 3.48 times more likely to have RHC behavior than adolescents with poor perceived benefits (Adjusted PR= 3.48; CI= 1.02-11.84; p=0.04).

Table 2
Bivariate Analysis of Reproductive Health Care Behavior Determinants in Adolescents

Variable	Category	RHC		Crude PR	95% CI		p - value
		Good	Not good		Lower	Upper	
Characteristics							
Sex	Male	16	24		0.51	2.97	0.79
	Female	19	23				
Age	≥ 15 years old	5	11		0.17	1.74	0.45
	< 15 years old	30	36				
Parents' Education	> Junior High School	16	28		0.23	1.38	0.30
	≤ Junior High School	19	19				
Family Income	> 1,950,000	15	47		0.41	2.45	0.97
	≤ 1,950,000	20	27				
Residence Status	With Parents	31	24	3.88	2.26	24.36	0.01
	Not with Parents	4	23				
Siblings Number	< 3	13	20		0.51	3.07	0.79
	≥ 3	22	27				
Health Literacy	Good	21	12	2.23	1.70	11.22	0.03
	Poor	14	35				
Parental Support	Good	25	16	2.50	1.87	12.52	0.02
	Poor	10	31				
Teacher Support	Good	24	16	2.30	1.67	10.76	0.04
	Poor	11	31				
Perceived vulnerability	Good	20	19		0.80	4.77	0.20
	Poor	15	28				
Seriousness	Good	23	23		0.80	4.77	0.19
	Poor	12	24				
Benefits	Good	22	18	2.72	1.10	6.72	0.04
	Poor	13	29				
Barriers	Good	19	18		0.78	4.65	0.22
	Poor	16	29				
Cue to Act	Good	16	18		0.56	3.30	0.65
	Poor	19	29				

Notes: p-value= significant value; CI= Confidence Interval; PR = Prevalence Ratio

Table 3
Multivariate Analysis of Reproductive Health Care Behavior Determinants in Adolescents

Variable	Category	Adjusted PR	95% CI		p-value
			Lower	Upper	
Residence Status	Living with Parents	4.86	1.22	19.27	0.02
	Not Living with Parents	Ref			
Health Literacy	Good	4.18	1.12	15.55	0.03
	Poor	Ref			
Parental Support	Good	3.87	1.16	12.84	0.02
	Poor	Ref			
Teacher Support	Good	2.08	0.60	7.15	0.24
	Poor				
Perceived Vulnerability	Good	2.20	0.64	7.51	0.20
	Poor				
Seriousness	Good	1.91	0.58	6.32	0.20
	Poor				
Benefits	Good	3.48	1.02	11.84	0.04
	Poor	Ref			
Barriers	Good	1.48	0.46	4.75	0.50
	Poor				

Notes: CI= Confidence Interval; PR = Prevalence Ratio; Ref= References of adjusted PR

DISCUSSION

The research findings show that adolescents who live with their parents and have good parental support have a higher rate of RHC. When it comes to reproductive health, parents serve as a crucial support system for adolescents. The presence of parents in the lives of adolescents offers ample opportunities to have open and unpretentious conversations about the subject matter, thus enabling them to receive factual and reliable information. Adolescents who live with their parents have more time together to discuss reproductive health. In addition, parents can also pay attention to adolescent behavior in maintaining adolescent reproductive health directly (16). Meanwhile, adolescents who do not live with their parents have limited time to communicate with their parents. However, even if adolescents live with their parents, their RHC behavior may remain low if they do not have satisfactory parental support. Parents should maintain communication, information and education on reproductive health for their children, even if they do not live under the same roof. Parents' attention can be in the form of phone calls and providing the correct referral sources to provide their children with an understanding of RHC behavior. Research by Macheria in Kenya in 2021 found that the use of mobile phones could help adolescents receive reproductive health information (17).

Good parental support can improve RHC behavior in adolescents. The support may include providing information, showing empathy, sharing experiences and giving assistance (18). Parental support can help adolescents understand and do RHC properly. According to the findings of Violita's research conducted in Makassar in 2019, it was observed that providing adequate family support can immensely enhance the accessibility of reproductive health services to adolescents. Adolescents have a great sense of curiosity and try to find answers to each of their problems independently. The vital role of parents in paying attention to adolescent reproductive health is to provide education on how to maintain the cleanliness of the reproductive organs, the development of sexuality and efforts to prevent premarital sex (19). However, many parents still perceive that reproductive health issues are only

related to sexual relations, making the topic taboo to be discussed with their children (20). As a matter of fact, *reproductive health* is a physical, mental, and social condition that is very important for adolescents to understand. Research conducted by Sucia and Ekomila on Malay adolescents in Medan found that there were still many parents who adopted myths about reproductive health that actually had nothing to do with it. Some of these Malay adolescents explained that the closest social circle, especially the family, had not instilled positive and constructive values related to adolescent puberty, including how to respond to their sexual desires. Parents only emphasized their children to maintain cultural, normative and religious values (21). This situation makes the children feel uncomfortable and choose to seek information on their own, such as from peers and the media. Usually, adolescents are more comfortable talking to their friends. If the information obtained is incorrect, it will have a negative impact on their behavior (22). Furthermore, Windiarti and Besral's research on adolescents with early marriage in Indonesia recommends the importance of improving adolescent knowledge regarding their cultural aspects. For this reason, parents can use sharing thoughts in conveying reproductive health education to prevent early marriage (23–24). As a result, adolescents feel comfortable telling stories and asking questions about reproductive health. The parental initiative is consequential in improving the correct and complete understanding and RHC with intimacy and friendship with children (25–26).

Adolescents with adequate health literacy are more likely to have positive RHC. Adolescents need to have knowledge and skills regarding reproductive health. Reproductive health literacy includes understanding how to perform reproductive health care, cleaning reproductive organs, managing menstruation, using appropriate underwear, and preventing sexual behavior-related health problems. Maintaining cleanliness is crucial to preventing reproductive health issues. Efforts to improve health literacy can be made through education via the Internet or media, which can attract people's interest in accessing it. Javarigiv and Peyman's research in 2019 shows that good health literacy can increase adolescents' beliefs and abilities in dealing with puberty (27).

The results of this study also show that adolescents with good perceived benefits are more likely to do RHC. Adolescents feel confident that they will have the benefits if they do RHC and prevent the risk of serious reproductive health problems. It is necessary to believe that RHC could prevent reproductive health problems. This concern will unquestionably give adolescents the confidence to take action because of the expected benefits (28). Therefore, it is necessary to make adolescents have good perceived benefits of doing RHC. Health education can improve one's perception of the belief that they will gain benefits when doing RHC (29–30).

Research Limitations

Limitations of this study include conducting research in a school only. Therefore, further research should involve several schools for broad generalization. This research study highlights the imperative need for policymakers to consider the requirement for additional research on healthy reproductive behavior among junior high school students.

CONCLUSION

This study found that living with parents has the most significant contribution to improving RHC behavior in adolescents. Providing intensive support, attention, and education related to RHC is crucial for parents who do not live with their children. They must ensure their children consistently practice RHC, regardless of their living arrangements.

CONFLICT OF INTEREST

The authors declare that there are no significant competing financial, professional, or personal interests that might have affected the performance or presentation of the work described in this manuscript.

AUTHOR CONTRIBUTION

All authors contributed to the research. IFEM: Developing idea, methodology, instrument, data analysis and drafted manuscript. AELT: Developing instruments, data collecting, data analysis and interpreting the data. JC: Developing instruments, administration and supervision.

ACKNOWLEDGMENTS

The author wishes to express sincere gratitude to the enumerators for their invaluable assistance

in data collection throughout the entire research process. The author also expresses her gratitude to the principal and the teachers for their cooperation during the study. In particular, the author thanks all students for being the respondents and for taking the time to fill out the research questionnaire. This study was funded by DIPA FKM Nusa Cendana University 2022.

REFERENCES

1. Kyilleh JM, Tabong PT-N, Konlaan BB. Adolescents' reproductive health knowledge, choices and factors affecting reproductive health choices: a qualitative study in the West Gonja District in Northern region, Ghana. BMC Int Health Hum Rights. 2018;18(1):1–12.
2. Starrs AM, Ezeh AC, Barker G, Basu A, Bertrand JT, Blum R, et al. Accelerate progress—sexual and reproductive health and rights for all: report of the Guttmacher–Lancet Commission. Lancet. 2018;391(10140):2642–92.
3. Liang M, Simelane S, Fillo GF, Chalasani S, Weny K, Canelos PS, et al. The state of adolescent sexual and reproductive health. J Adolesc Heal. 2019;65(6):S3–15.
4. BPS. Number of residents by age group and gender, 2022. Jakarta; 2023.
5. Lestyoningsih IH. Implementation of a problem-based reproductive health model for adolescent girls in Indonesia in 2018. J Berk Kesehat. 2018;4(2):47.
6. Singh S, Remez L, Sedgh G, Kwok L, Onda T. Abortion worldwide 2017: uneven progress and unequal access. 2018;
7. The National Population and Family Planning Board. Indonesian demographic and health survey report 2017. 2018.
8. Kementerian Kesehatan RI. Executive report on the development of HIV, AIDS and sexually transmitted infections (PIMS) for the first quarter of 2022. Jakarta: Kemenkes RI; 2022.
9. Mussida C, Sciulli D, Signorelli M. Secondary school dropout and work outcomes in ten developing countries. J Policy Model. 2019;41(4):547–67.
10. BPS U. Prevention of child marriage. 2020.
11. Zakiah U, Fitri HN. Description of teenage pregnancy in terms of age, cause of pregnancy and first contact with health workers in the working area of the Sikumana Health Center, Kupang City. CHMK Midwifery Sci J. 2020;3(1):128–33.
12. Krisylva A, Joewono HT, Maramis MM. Factors influencing pregnancy before marriage among teenagers at the Sikka Regency Health Center in 2017. J Keperawatan Muhammadiyah. 2019;4(2).
13. Sari P, Ningsih VR, Hulaila S, Sayuti S. Factors related to the behavior of young women in maintaining the cleanliness of reproductive organs during menstruation at MTS Negeri 05 Kerinci. JIK J ILMU Kesehat. 2022;6(2):286–93.
14. Setyaningsih W, Yudianti I, Mansur H. Perceived susceptibility, barriers, and cues to action as determinant factors of reproductive health behavior. Int J Public Health. 2022;11(3):884–92.
15. Violita F, Hadi EN. Determinants of adolescent reproductive health service utilization by senior high school students in Makassar, Indonesia. BMC Public Health. 2019;19:1–7.
16. Eshete A, Shewasinad S. Adolescent-parent communication on sexual and reproductive health issues in Ethiopia: a systematic review and meta-analysis. Ethiop J Health Sci. 2020;30(5).
17. Macharia P, Pérez-Navarro A, Inwani I, Nduati R, Carrion C. An exploratory study of current sources of adolescent sexual and reproductive health information in Kenya and their limitations: are mobile phone technologies the answer? Int J Sex Heal. 2021;33(3):357–70.
18. Lin X, Kishore R. Social media-enabled healthcare: a conceptual model of social media affordances, online social support, and health behaviors and outcomes. Technol Forecast Soc Change. 2021;166:120574.
19. Chodijah S, Ekawati D, Zaman C. Implementation of sex education in children in elementary school 108 Palembang. Maj Kedokt Sriwij. 2022;54(1).
20. Silva M, Kassegne S, Nagbe R-HY, Babogou L, Ezouatchi R, Ado AL, et al. Changing the script: intergenerational communication about sexual and

reproductive health in Niamey, Niger. J Health Commun. 2022;27(10):755–63.

21. Sucia AD, Ekomila S. Reproductive health education in the family as an instillation of cultural values for ethnic Malay young women in Medan Sunggal District. J Antropol Sumatera. 2018;18(1).
22. Usonwu I, Ahmad R, Curtis-Tyler K. Parent–adolescent communication on adolescent sexual and reproductive health in sub-Saharan Africa: a qualitative review and thematic synthesis. Reprod Health. 2021;18(1):1–15.
23. Windiarti S, Besral B. Determinants of early marriage in Indonesia: A systematic review. In: Proceedings of the International Conference on Applied Science and Health. 2018. p. 287–93.
24. Gebreyesus H, Teweldemedhin M, Mamo A. Determinants of reproductive health services utilization among rural female adolescents in Asgede-Tsimbla district Northern Ethiopia: a community based cross-sectional study. Reprod Health. 2019;16(1):1–10.
25. Putri A, Setiawati Y, Shieh Y-T, Lin S-H. High-risk internet addiction in adolescents during pandemic COVID-19 and parent's role. J Berk Epidemiol. 2022;10(1):11–20.
26. Yimer B, Ashebir W. Parenting perspective on the psychosocial correlates of adolescent sexual and reproductive health behavior among high school adolescents in Ethiopia. Reprod Health. 2019;16:1–9.
27. Jafarigiv S, Peyman N. The effect of life skills training with health literacy strategies on self-esteem and self-efficacy in female students during puberty. Int J Adolesc Med Health. 2022;34(1).
28. Kim HW, Kang SY, Kim J. Factors influencing adolescents' healthy pregnancy preparation behavior: a cross-sectional gender comparison applying the health belief model. Reprod Health. 2022;19(1):90.
29. Shahnazi H, Ahmadi-Livani M, Pahlavanzadeh B, Rajabi A, Hamrah MS, Charkazi A. Assessing preventive health behaviors from COVID-19 based on the Health Belief Model (HBM) among people in Golestan province: A cross-sectional study in Northern Iran. 2020;
30. Manurung IFE, Wahyuni CU, Probandari A. religious leader's support toward individual at risk ofhiv/aids to attend voluntary counselling and testing service. Kesmas J Kesehat Masy Nas (National Public Heal Journal). 2020;15(2)**.**