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Peer communication about contraception knowledge of early adolescent in urban areas

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ABSTRACT

Currently, generation Z is 27.94% of the Indonesian population and triggers fulfillment of sexual reproductive health information, including contraception, which should be given of 9-12 years old. This effort is necessary to reduce unwanted pregnancy incidence, free sex, and abortion. A factor potential to influence is peer communication. Determine the relationship between peer communication with contraception knowledge of early adolescents in the urban area of Indonesia. This quantitative study with a cross-sectional design uses the Global Early Adolscent Study's (GEAS) secondary data. The research subjects were 2,225, which were 7th grade of State Junior High Schools in Bandar Lampung, Semarang, and Denpasar, Indonesia. The relationship between peer communication to contraceptive knowledge considers age, gender, sexual history, economic status, residence, and parental communication. Contraception knowledge is divided into good and poor. Data processing was done with univariable, chi-square, and logistic regression statistical tests and used 95% confidence interval (CI) with a 0.05 significance level. Peer communication significantly related to contraceptive knowledge (p-value <0.001). Other factors that influenced were gender, residence, sexual intercourse, and parental communication, which were statistically significant. Conclusion: About half of the early adolescents have good contraception knowledge, which is three times more likely in adolescent who communicates with peers.

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1. INTRODUCTION

Currently, 27.94% of Indonesia's population is generation Z. Meanwhile, the productive age population increased from 53.39% to 70.72% from 1971 to 2020 [1]. The high number of young people encourages efforts to fulfill reproductive sexual health rights, especially information and education related to reproductive sexual health, including pregnancy, contraception, and sexually transmitted infections (STIs), to prevent unintended pregnancies and maternal mortality [2]. It is estimated that as many as 523,885 to 663,146 maternal deaths in Indonesia could be prevented from 1970 to 2017 with contraceptives. It caused maternal mortality to decrease by 37.5–43.1%. If the contraception prevalence rate (CPR) increases from 63% in 2017 to 70% in 2030, maternal mortality can be further prevented [3]. Therefore, knowledge related to contraception needs to be given starting from a young age.

Based on the International technical guidance on sexuality education by the United Nations Educational, Scientific and Cultural Organization (UNESCO) regarding Comprehensive Sexual Education (CSE), the early adolescent should have chances to get sexual reproductive knowledge, includings contraception. However, any factors that influence it relates to sociodemographics and the environment [4]. Then, peers are a place where adolescents exchange ideas and discuss them. Adolescents allow psychological and social changes to occur by increasing imitating behavior and exploring with friends in their association. Meanwhile, adolescents can get contraception information from their peers, but it can be ambiguous [5]. On the other hand, even though adolescents are transitioning from children that already have a sense of independence, they still need parental supervision [6].

In addition, mass media access also has a role in one's knowledge. Social media usage among adolescents increased from 55% in 2006 to 76% in 2015 [7]. Mass media itself can be classified into internet-based and non-internet-based. Programmed mass media usage can increase sexual reproductive health and support healthy reproductive behavior [8]. Then it must be investigated. It is because adolescents tend to be still in the learning stage, so the circumstances around them significantly affect their growth and development of adolescents. If they are allowed to explore and enter into promiscuity, it can have harmful effects on their sexual reproductive habits that may occur [9].

This study used the Global Early Adolescent Study (GEAS) data. The authors are interested in knowing the factors that can affect adolescents' contraception knowledge. Contraception knowledge is part of the SDGs. This target explains that the community needs to universal access to sexual and reproductive health services, including family planning, information and education, and the integration of reproductive health into strategies and national programs by 2030. GEAS research locations are the city of Bandar Lampung, Semarang, and Denpasar. These research locations are urban areas so that the resulting research can be describe early adolescents in urban areas in Indonesia. From the magnitude of the possibility of an adverse event on adolescents and a review of the possible factors that cause it. The authors interested in researching communication relationships peers and mass media access with early adolescent contraceptive knowledge in Indonesia. Then this research is focused on answering a research problem: whether there is relationship between peer communication and mass media access to contraception knowledge in early Indonesian adolescents (10- 14 years old). The objective is to determine the relationship between peer communication and mass media access with contraception knowledge of early adolescents. It also compares peer and parental communication to their relationship of contraception knowledge. Besides that, the research can explain contraception knowledge based on every question.

2. RESEARCH METHOD

This quantitative study uses a cross-sectional design and using data from first wave of GEAS in 2018. The locations are in Junior High Schools that have been selected and will receive the Youth World Spirit or Semangat Masa Remaja (SETARA) program in urban areas in Indonesia: Bandar Lampung, Semarang, and Denpasar. Data sampling was carried out in August-October 2018.

The adolescents involved in this study had given their consent and had parental consent to participate in the study. The inclusion criteria of this research are early adolescents (10-14 years) and were 7th grade students of public junior high schools who were willing to participate in the GEAS research. We excluded the data that was incomplete or included in questions related to whose (who refused to answer the contraceptive knowledge question item, do not know, or refused to answer questions related to the characteristics of adolescents, communication questions regarding contraception, and mass media access). Contraceptive knowledge was measured using a questionnaire with a scoring system. Furthermore, answers to knowledge questions will be grouped into two categories, good and poor knowledge, based on the median [10]. Data analysis was done with univariable (table of distribution), bivariable (Chi-square), and logistic regression for multivariable statistical tests. The dependent variables in this study are contraception knowledge of early adolescent that measured by instrument which are develop by GEAS. After that, contraception knowledge is classified into good and poor. But every question's percentage is identify based on gender also. Meanwhile, the independent variables in this study are peer communication and it measured by instrument which are develop by GEAS too. These instruments are selected from many questions and parts in GEAS. In this research, there are also external variables which are mass media access, age of adolescent, gender, residence, economic status, experience of ever sexual intercourse, parental communication, duration of using mass media as entertain, duration of using mass media as communication media. Mass media access as entertain and communication media, chance of adolescent discuss about contraception with their peers, and chance of adolescent discuss about contraception with their parents are also identified. The whole test uses 95% confidence interval (CI) with a 0.05 significance level.

Then, the sample selection in this study was started from a list of all respondents to the first wave of the Global early adolescent study (GEAS) in 2018 with a total of 5,283 respondents and then it was identified

that 599 respondents did not agree to participate in this GEAS study. Furthermore, respondents were identified whose answers contained 15% of the missing values so that these respondents were not included in this study. After that, respondents who answered did not know the related questions or refused to answer were not included in the study. The research was conducted after ethical approval was issued in May-June 2022 with ethical clearance number KE-FK-0588-EC-2022. To know more about how to select the samples or respondents, it will be shown in Figure 1.

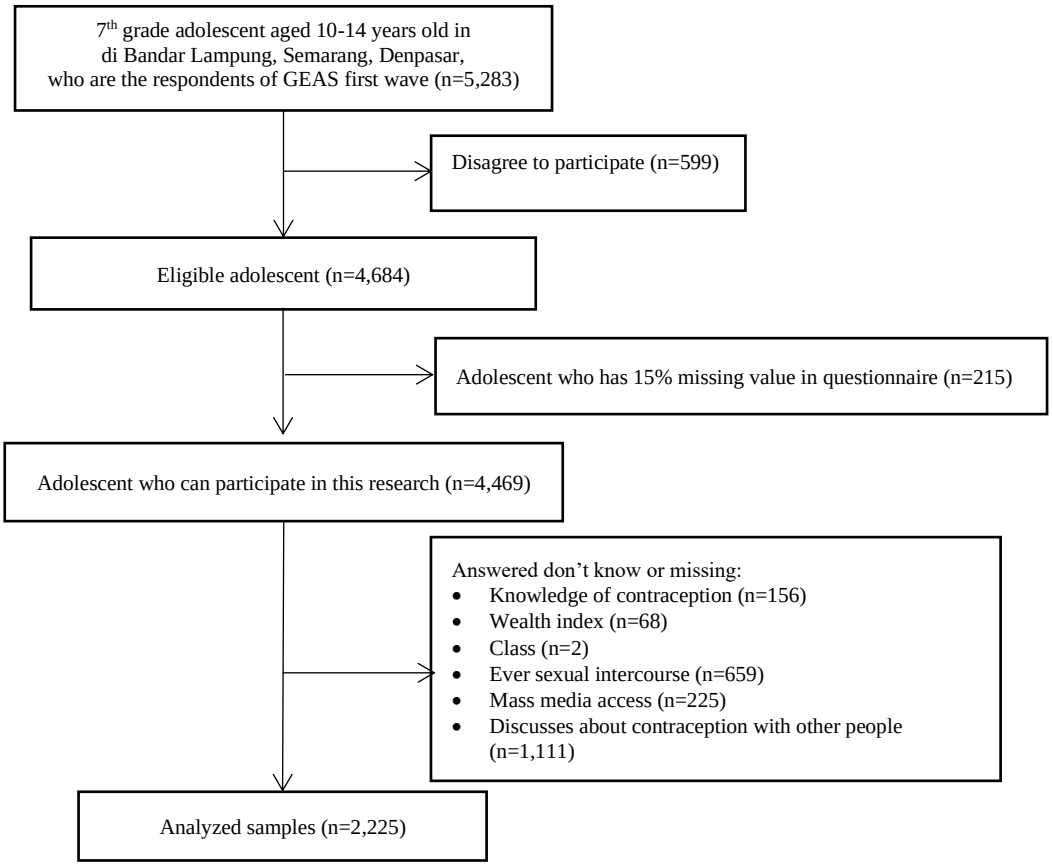

Figure 1. Scheme of research respondents

3. RESULTS AND DISCUSSION

The study analyzed 2,225 adolescents, considering various factors such as age, gender, residence, economic status, history of sexual activity, mass media access, peer communication, and parental communication. Only adolescents aged 12 to 14 were included in this study, as answers from those aged 10 to 11 were missing. It is estimated that the number of adolescents younger than 12 years old 1,718 (77.2%). The number of boys was greater than that of girls, and most participants lived in urban areas, with the highest number of respondents from Denpasar City. The 21.7% of the participants came from impoverished families, the highest among al economic statuses. Only 1.8% of the adolescents reported engaging in sexual activity. All adolescents had access to mass media, but most used it for more than two hours for entertainment and not as a communication medium. Only a tiny percentage (16% and 6$) of the participants discussed contraception with their peers or parents. The details od the characteristics of the respondents are given in Table 1.

After identify characteristics of respondent, this research also describes contraception knowledge that come from each question of questionnaire based on gender as shown in Table 2. Table 2 describes that male respondents predominate in providing the right answer, despite the fact that the majority of teenagers are unaware of it. To know more about relationship between each variable to contraception knowledge, odds ratios (OR) in each variable as shown in Table 3.

Peer communication, gender, location, ever sexual intercourse, and parental communication are some of the variables in bivariable analysis that are significantly related to contraception knowledge. Using the significance value from the bivariate analysis as a base, then multivariate analysis conducted. After taking into

account gender, residences, sexual activity, and parental communication, multivariable analysis with logistic regression can come to the conclusion that peer communication has a relationship with contraception knowledge. This is as a result of the fact that, as shown in Table 4, the model (model 2) that included those variables has the smallest AIC (akaike's information criterion) and BIC (bayesian information criterion), but the highest AUC (area under the curve) and Pseudo-R.

Table 1. Sample characteristics

Variables	Knowledge		Total	X^2	*p-value*
	Good	Poor			
	n (%)	n (%)	n (%)		
Age of adolescent					
≤12 years old	885 (77.5)	833 (76.9)	1,718 (77.2)	0.11	0.745
>12 years old	257 (22.5)	250 (23.1)	507 (22.8)		
Gender					
Boys	627 (54.9)	376 (34.7)	1,003 (45.1)	91.48	0.000
Girls	515 (45.1)	707 (65.3)	1,222 (54.9)		
Residence					
Bandar Lampung	219 (19.2)	203 (18.7)	422 (19.0)	187.13	0.000
Denpasar	668 (58.5)	356 (32.9)	1,024 (46.0)		
Semarang	255 (22.3)	524 (48.4)	779 (35.0)		
Economic status					
Very poor	226 (19.8)	257 (23.7)	483 (21.7)	8.77	0.067
Poor	218 (19.1)	214 (19.8)	432 (19.4)		
Middle	231 (20.2)	211 (19.5)	442 (19.9)		
Rich	247 (21.6)	191 (17.6)	438 (19.7)		
Very rich	220 (19.3)	210 (19.4)	430 (19.3)		
Ever sexual intercourse					
Yes	36 (3.2)	3 (0.3)	39 (1.8)	26.69	0.000
No	1,106 (96.8)	1,080 (99.7)	2,186 (98.2)		
Mass media access					
Television					
Yes	1,107 (96.9)	1,061 (97.9)	2,168 (97.4)	2.38	0.123
No	35 (3.1)	22 (2.1)	57 (2.6)		
Radio					
Yes	632 (55.3)	498 (46.0)	1,130 (50.8)	19.48	0.000
No	510 (44.7)	585 (54.0)	1,095 (49.2)		
Cellular phone					
Yes	1,016 (89.0)	946 (12.7)	1,962 (88.2)	1.39	0.238
No	126 (11.0)	137 (87.3)	263 (11.8)		
Computer					
Yes	926 (81.1)	846 (78.1)	1,772 (79.6)	3.02	0.082
No	216 (18.9)	237 (21.9)	453 (20.4)		
Social media					
Yes	1,075 (94.1)	1,019 (94.1)	2,094 (94.1)	0.00	0.966
No	67 (5.9)	64 (5.9)	131 (5.9)		
Duration of using mass media as entertain					
≤2 hours per day	315 (27.6)	253 (23.4)	568 (25.5)	5.21	0.022
>2 hours per day	827 (72.4)	830 (76.6)	1,657 (74.5)		
Duration of using mass media as communication media					
Everyday	229 (20.1)	165 (15.2)	394 (17.7)	8.85	0.003
Not everyday	913 (79.9)	918 (84.8)	1,831 (82.3)		
Mass media access as entertain and communication media					
Often	181 (15.8)	140 (12.9)	321 (14.4)	3.85	0.050
Rarely	961 (84.2)	943 (87.1)	1,904 (85.6)		
Adolescent discuss about contraception with their peers					
Yes	183 (16.0)	65 (6.0)	248 (11.1)	56.38	0.000
No	959 (84.0)	1.018 (94.0)	1,977 (88.9)		
Adolescent discuss about contraception with their parents					
Yes	183 (16.0)	61 (5.6)	244 (11.0)	61.48	0.000
No	959 (84.0)	1,022 (94.4)	1,981 (89.0)		
Total	1,142 (51.3)	1,083 (48.7)	2,225 (100)		

Source: GEAS data 2018; n = total; X^2 = Chi-square analysis *unweighted data

This study's result differs from the 2017 Indonesian Demographic and Health Survey, which showed that 94% of girls and 93% of boys knew at least one contraception method. However, it is similar in Makassar that 59% of adolescents have good contraceptive knowledge [11]. It can show that contraceptive knowledge is still not optimal yet. In more detail, this study looks at the answers to the questions. On the question about condoms, most boys answered correctly, but girls answered do not know. However, this finding is similar to a study in Kenya, where knowledge about condoms was more common in boys [12]. Condoms are popular because they are commonly used, inexpensive, and do not require prescription [13]. More than half of adolescents do not know that condoms can prevent human immunodeficiency virus (HIV), just like adolescents in Asia [14]. The majority of adolescent answered don't know about pills and injections. This finding is similar to that in Tanzania [15].

Table 2. Answer of contraception knowledge based on gender

Questions	Answer options	Gender	
		Boys (n (%))	Girls (n (%))
Do you ever heard that condoms can used by man before sexual intercourse?	Correct	676 (67.4%)	587 (48.0%)
	Wrong	240 (23.9%)	439 (36.0%)
	Don't know	87 (8.7%)	196 (16.0%)
Girls can take a pill everyday to prevent pregnancies	Correct	245 (24.4%)	220 (18.0%)
	Wrong	223 (22.2%)	221 (18.0%)
	Don't know	535 (53.4%)	781 (64.0%)
Using condom can prevent pregnancy	Correct	571 (56.9%)	372 (30.4%)
	Wrong	120 (12.0%)	159 (12.9%)
	Don't know	312 (31.1%)	691 (56.6%)
Using condom can protect from HIV	Correct	455 (45.4%)	286 (23.4%)
	Wrong	119 (11.8%)	182 (14.9%)
	Don't know	429 (42.8%)	754 (61.7%)
Girls can get contraceptive injection to prevent pregnancy	Correct	352 (35.1%)	359 (29.4%)
	Wrong	165 (16.4%)	140 (11.4%)
	Don't know	486 (48.5%)	723 (59.2%)
Girls or boys can take a pill before sexual intercourse that can protect them from HIV spreading	Correct	226 (22.5%)	164 (13.4%)
	Wrong	221 (22.0%)	220 (18.0%)
	Don't know	556 (55.5%)	838 (68.6%)
Total		1,003	1,222

Table 3. Bivariable analysis between independent variables with contraception knowledge in adolescent

Variables	Knowledge		OR	CI 95%
	Good n (%)	Poor n (%)		
Peer communication				
Yes	183 (16.0)	65 (6.0)	2.99	2.213-4.035***
No	959 (84.0)	1,018 (94.0)	Ref	
Mass media access				
Often	181 (15.8)	140 (12.9)	1.26	0.999 – 1.610
Rarely	961 (84.2)	943 (87.1)	Ref	
Age of adolescent				
≤12 years old	885 (77.5)	833 (76,9)	1.033	0.848-1.260
>12 years old	257 (22.5)	250 (23,1)	Ref	
Gender				
Boys	627 (54.9)	376 (34.7)	2.29	1.929-2.716***
Girls	515 (45.1)	707 (65.3)	Ref	
Residence				
Bandar Lampung	219 (19.2)	203 (18.7)	Ref	
Denpasar	668 (58.5)	356 (32.9)	1.74	1.379-2.194***
Semarang	255 (22.3)	524 (48.4)	0.45	0.352-0.577***
Economic status				
Very poor	226 (19.8)	257 (23.7)	Ref	
Poor	218 (19.1)	214 (19.8)	1.16	0.893-1.503
Middle	231 (20.2)	211 (19.5)	1.24	0.961-1.613
Rich	247 (21.6)	191 (17.6)	1.47	1.132-1.909*
Very rich	220 (19.3)	210 (19.4)	1.19	0.918-1.546
Ever sexual intercourse				
Yes	36 (3.2)	3 (0.3)	11.72	3.571-38.448***
No	1,106 (96.8)	1,080 (99.7)	Ref	
Parental communication				
Yes	183 (16.0)	61 (5.6)	3.20	2.351-4.347***
No	959 (84.0)	1,022 (94.4)	Ref	
Total	1,142 (51.3)	1,083 (48.7)		

Source: GEAS data 2018; n = total; X^2 = *Chi-square analysis*

Table 4. Logistic regression: relationship between peer communication and other variables with contraception knowledge of adolescent

Variables	*Unadjusted* Model 1 OR (95% CI)	*Adjusted* Model 2 OR (95% CI)	Model 3 OR (95% CI)	Model 4 OR (95% CI)	Model 5 OR (95% CI)
Peer communication					
Yes	2.99 (2.22-4.02)***	2.38 (1.73-3.27)***	2.38 (1.73-3.27)***	2.51 (1.85-3.39)***	2.88 (2.11-3.92)***
No	1	1	1	1	1
Age					
≤12 years old		1.00 (0.80-1.24)		1.16 (0.94-1.42)***	
>12 years old		1		1	
Gender					
Boys		2.10 (1.75-2.53)***	2.10 (1.75-2.53)***	2.04 (1.72-2.45)***	
Girls		1	1	1	
Residence					
Bandar Lampung		1	1		1
Denpasar		1.92 (1.50-2.44)***	1.92 (1.50-2.44)***		1.80 (1.42-2.28)***
Semarang		0.52 (0.40-0.67)***	0.52 (0.40-0.67)***		0.49 (0.38-0.63)***
Ever sexual intercourse					
Yes		5.83 (1.72-19.8)**	5.84 (1.72-19.8)**	8.23 (2.50-27.1)***	
No		1	1	1	
Parental communication					
Yes		2.40 (1.74-3.31)***	2.40 (1.74-3.31)***		2.50 (1.83-3.43)***
No		1	1		1
Pseudo R^2	0.019	0.118	0.118	0.050	0.092
AIC	3028.3	2732.4	2732.4	2939.0	2809.8
AUC (ROC)	0.5501	0.7248	0.7245	0.6350	0.6941
Observations	2,225	2,225	2,225	2,225	2,225

Exponentiated coefficients; 95% confidence intervals in brackets
Data source: GEAS 201; unweighted data; *(p<0.05), **(p<0.01), ***(p<0.001); akaike's information criterion (AIC); bayesian information criterion (BIC)

Peer communication affects knowledge of contraception among early adolescents in Indonesia. Peers are the primary of sexual reproductive health [17]. It is because peers have similar mindsets and influence obtaining the accuracy of contraceptive knowledge [18]. Therefore, any program should help to get information on sexual reproductive health, but it has not been running optimally. On the other hand, Comprehensive Sexual Education (CSE) should be implemented as part of the framework that can achieve better sexual and reproductive health. In CSE it is explained that in each developmental age of early adolescence there are differences in physical, mental, and social response related to sexuality.

Mass media access in early adolescence is not significantly related to contraceptive knowledge. Evaluation of mass media usage for early adolescents in Indonesia is still lacking [14]. If any dissemination of information on sexual reproductive health in the mass media happens, it can increase adolescent knowledge. This study shows that there is no influence of age on the relationship between peer communication and mass media access to contraceptive knowledge. This is because the age of the adolescent has similar mindset and psychological side. Boys are twice as likely to have good contraception knowledge as girls. This finding supports the evidence study from India, that adolescent knowledge about sexual reproductive health was lower in girls [19]. Adolescents who have ever had sexual intercourse feel the need to increase their knowledge about contraception, but the knowledge possessed by early adolescents is smaller than at a higher age [20].

Place of residence affects the relationship between peer communication and contraception knowledge, is statistically significant. These three cities are located on different islands and have different characteristics. Eventhough there are urban areas, every city has its characteristics. The city of Bandar Lampung tends to be a mix of various ethnic cultures and is a place for the migration of people from other regions. Local tribal communities and migrants live alongside with the agricultural, forestry, mining, fishing, processing, and selling industries as their economic activities [21]. This situation makes the mindset of the local community more open with knowledge. On the other hand, Semarang, still dominated by the local community, tends to be closed and considered taboo in discussing sexual and reproductive health. In contrast to Denpasar City, although it is dominated by local people, it is a foreign tourist destination and offers many service industries, so that information and knowledge on sexual reproductive health are considered necessary and reasonable to explore as a preventive and protective effort [21].

Based on economic status, this study shows that there is no effect. This is contradictive from studies that said that people with lower economic status were allowed common contraceptive knowledge [22]. However, the adolescents in this study were all in seventh grade at almost the same age. This makes age and the same level of education become meaningless in determining knowledge of contraceptives. Parental communication influences on the relationship between peer communication and contraceptive knowledge. Parents are teachers and friends to discuss, but they need to be more involved in increasing and monitoring adolescent knowledge [23]. Parents should be role models, teachers, and discussion partners regarding adolescent sexual reproductive health, including contraception [24], [25]. However, parents still consider the discussion of adolescent sexual reproductive health, especially contraception, as a taboo subject and rarely want it discussed [26]. Parents are still influenced by conservative socio-cultural conditions and religious norms that make it seem that sexual reproductive health is not commonly discussed [14]. Parents also do not know much about sexual reproductive health information that is suitable for adolescents so they feel that the information they get is lacking and inadequate [27]. Therefore, parents need to be more involved in improving and monitoring adolescent contraceptive knowledge through targeted communication. Communication between parents and teenagers is related knowledge of sexual and reproductive health as early as possible increase adolescent knowledge. This can be useful for teenagers who later become a provision for life in adulthood, reducing the risk of unwanted pregnancies and sexually transmitted infections in adolescents [28]. To make it happen, the information of parents and knowledge also need to improve and be more open to discuss knowledge contraception with their children [23]. In the future, with support from the environment and good mass media, it will potentially increase the use of contraception regularly correct and consistent. Early pregnancy and unwanted pregnancies will also decrease in adolescents [29].

This research has several limitations such as only describe the situation in urban areas because it only involves Bandar Lampung, Semarang, and Denpasar. The situation in rural areas is not described in this study. The other limitations are survey in this research are less complex and varied to explain the level of knowledge about youth contraception and only uses one-wave GEAS data with a cross-sectional study design, so it cannot describe causal relationships more clearly. Lastly, there is a mass media access variable as an independent variable that has no effect on early adolescent contraceptive knowledge.

4. CONCLUSION

Peer communication is related to contraception knowledge in early adolescents in urban area of Indonesia. Half of early adolescents have good contraception knowledge. Peer communication has a higher proportion than parental communication, influencing contraception knowledge. Separate from adolescents with access to potential mass media have good contraception knowledge, but not statistically significant. Nevertheless, half of the early adolescents in Indonesia have good contraceptive knowledge. Furthermore, as a recommendation, Comprehensive Sexual Education should be implemented in schools to increase adolescent information and their peers. Meanwhile, parents need to supervise mass media usage in adolescents and be more open to the needs of adolescents, which can help increase their knowledge. The government also needs to provide complete education regarding reproductive health. Further studies might be expected to find out more about adolescent contraception knowledge with more varied question items.

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