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Determinants Factors of High-risk Sexual Behavior Pregnancy among Adolescent in Indonesia

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Abstract

BACKGROUND: The vulnerability of adolescent lifestyles, especially sexual behavior among adolescents, which causes an increase in pregnancy and early marriage.

AIM: This study aimed to analyze the determinants of high-risk sexual behavior among adolescents in Indonesia.

METHODS: A correlational analytic research design was used with a cross-sectional approach using secondary data for the 2017 Indonesian demographic and health survey data (IDHS). The data collection was carried out through filling in the instruments developed by the 2017 IDHS. The data were analyzed using percentages, Chi-square test, and logistic regression. The study population was all adolescents, totaling 9,971 women and 12,612 single men aged 15–24 and living in Indonesia in the 2017 IDHS. The sampling technique used total sampling. Time of research: August-November 2020. Place: research locations in 34 provinces in Indonesia.

RESULTS: In male respondents, it was shown that the factors most influencing high-risk sexual behavior in adolescents were age (p = 0.000), knowledge (p = 0.003), place of residence (p = 0.000), discussion before wet dreams (p = 0.000), age at first wet dream (p = 0.000), age at first dating (p = 0.019), and internet usage (p = 0.000). Meanwhile, female respondents indicated that the most influential factors were age (p = 0.000) and place of residence (p = 0.032).

CONCLUSION: Boys have many factors that influence high-risk sexual behavior than girls. Information on determinant factors of high-risk adolescent sexual behavior can be used as a basis for developing policies for developing interventions in solving problems of premarital pregnancy due to high-risk sexual behavior among adolescents.

Introduction

Indonesia is currently entering the demographic bonus era due to changes in the age structure of the population, where there has been a decrease in the ratio of the non-productive population (aged <15 years and ≥65 years) to the productive population (aged 15–64 years) [1]. The productive population in this era is dominated by generation Y (millennial generation) and generation Z (youth). The population of adolescents aged 15–24 years is around 17% of Indonesia's population, which is projected to continue to grow [2]. Population census data in 2010 shows the number of adolescents is quite high, reaching 64 million (27.6%) [3].

Youth according to the 2017 Indonesian demographic and health survey data (IDHS) are unmarried women and men aged 15–24 years [2]. Adolescence is a period of transition from childhood to adulthood, a time of seeking identity, and trial and error [4], [5]. Indonesian adolescents are currently experiencing a rapid social change from a traditional society to a modern one, which is changing their norms, values and lifestyle [6]. This is a risk of problems including reproductive health problems such as high-risk sexual behavior. The current generation of adolescents is often faced with various acute problems such as the breakdown of adolescent relationships and the proliferation of immoral acts (access to pornography, free sex, abortion). Sexual behavior in adolescents is one of the three basic threats to Adolescent Reproductive Health (KRR) or the KKR Triad. This problem is one of the triggers for the relatively high age-specific fertility rate aged 15–19 years.

Data from the United Nations Population Division, in 2007, showed that as many as 592,975,000 teenagers aged 10–19 years in the world were estimated to have 47% become sexually active [7]. High-risk sexual behavior among unmarried adolescents tends to increase. SKRRI 2007 data found that 15% of boys and 20% of girls started dating at the age of 12–14 years [8] and increased in 2012 to 25% for boys and 26% for girls [9]. According to SDKI data (2017), adolescents start dating at the age of 15 (40%) by engaging in behaviors such as hugging, kissing lips,

touching each other, and having sexual intercourse [2]. According to SKKRI (2012), it was found that adolescents during dating hold hands (72% of girls, 80% of boys), kiss (48% of boys, 30% of girls, and feel sensitive body parts (30% of boys, 6% of girls) [9]. This constitutes a high risk of premarital sex which leads to pregnancy which often ends in abortion. More than 12% of young women experience unwanted pregnancies and 23% end up aborting the pregnancy [2].

KRR is one of the four priority components of the National Reproductive Health [10]. The KRR program is one of the Population Family Planning and Family Development Programs that focuses on increasing the knowledge of adolescents, one of which is preventing early marriage and unwanted pregnancy [2]. To achieve this, the National Population and Family Planning Board (BKKBN) has created a Family Development, Population and Family Planning (Bangga Kencana) program. Several strategic issues that are developing and still need attention in the implementation of the 2020-2024 Bangga Kencana program include: new demands in building families for some communities (millennial and generation Z), lack of understanding of youth and families about planning/preparing for family life, as well as the inadequate management of various types of media to increase understanding and change in attitudes and behavior in support of the Bangga Kencana program [11].

Many factors influence the knowledge, attitudes, and behavior of adolescents. Adolescents often experience KRR problems due to the lack of adequate information, especially knowledge of KRR and preparation of family life [2]. Indonesia still experiences less even distribution of reproductive health promotion [12]. The lack of information obtained by adolescents has an impact on their level of knowledge, attitudes, and behavior. Knowledge was one of the factors associated with risky behavior among adolescents in Indonesia [13], [14]. In addition to the level of knowledge, education level, information sources, and parenting styles were also associated with early marriage [15]. Individual characteristic factors are such as age [16], use of social media such as the internet, newspapers, radio [17], [18], family norms and smartphone [19], [20], gender and peers [21], [22], [23] known to influence adolescent behavior. Meanwhile, the socio-demographic factors of parents (employment, education, family income) have a relationship with attitudes in adolescents [24].

The increasing number of adolescents with problems will interfere with the achievement of the tasks of adolescent growth and development [3]. It needs to be the attention of the government and various related parties, given that the current KRR problem in Indonesia is currently the main problem faced by adolescents. The problem of high-risk sexual behavior is a reflection of Indonesia's future which impacts on health problems and other aspects, both biopsychosocial and economic. Sexual issue is now one of the government's priorities. The magnitude of the impact that will be borne due to the KRR problem for future lives, the government is committed to suppressing the incidence of KRR problems with various programs including the implementation of KKR education through the Bangga Kencana program.

Based on the technocratic design of the 2020-2024 National Medium Term Development Plan and the president's direction, RJPM is directed at increasing quality human resources who are competitive capable of building the character of the Nation through the Mental Revolution and Cultural Development. In achieving these goals, policy support is needed, one of which is through the KRR to support the Priority Program Increasing Access and Quality of Health Services, and Strengthening the Quality of Families [11]. Strengthening the quality of the family is indicated by a decrease in the median age at first marriage for women. The age at marriage in adolescents can be controlled by adequate exposure to KRR in adolescents.

The existence of adolescents is a national asset that the government and society should pay attention to in a system manner so that they can optimize their developmental tasks according to their age stages. Seeing the huge number, teenagers as the nation's next generation need to be prepared to become human beings who are physically, spiritually, mentally and spiritually healthy. But in fact, various studies show that adolescents have very complex problems along with the transitional period experienced by adolescents. To overcome this problem, it is necessary to analyze what factors can influence high-risk sexual behavior in adolescents, as well as which factors influence this behavior the most. The research results are expected to be a reference for policy makers in developing appropriate interventions to prevent high-risk sexual behavior in adolescents. So that pregnancy in adolescents and early marriage can be resolved immediately. The purpose of this study was to analyze the determinants (demographic, individual, environmental, predisposing, enabling, and driving factors) associated with high-risk sexual behavior among adolescents in Indonesia. This research is expected to be useful as a recommendation material for decision makers/stakeholders in an effort to produce evidence-based policies to prevent risky sexual behavior in adolescents, the basic material in developing an intervention model for KKR service programs by various sectors in Indonesia, and as a reference base for stakeholders to develop a strategic solution model for Bangga Kencana.

Methods

The design of this research was correlational analytic with cross sectional approach. Data collection

was carried out at once at 1 time, carried out in Indonesia using secondary data obtained from the IDHS: KKR 2017. Research was conducted from August-November 2020 with ethical permission from ICF International with ICF Prohect Number 132989.0.000. The population in this study were all adolescents totaling 9,971 women and 12,612 single men aged 15–24 and living in 34 provinces in Indonesia based on the 2017 IDHS. The sampling technique used total sampling. Inclusion Criteria: girls and boys aged 15–24 years, live in Indonesia, and have complete data on the required variables. Exclusion criteria: women and men aged <15 years and over 24 years and had incomplete data.

The dependent variable in this study is high-risk sexual behavior in adolescents. While the independent variables are: age, gender, level of education, economic dimension, area of residence, current youth activities, age at first menstruation, discussion activities before having the first menstruation, age for first wet dreams, and discussion activities before first menstruation, having had wet dreams, age at first dating, age at first sexual intercourse, sources of information about physical changes during puberty, exposure to mass media discussion activities on KKR, knowledge of the reproductive system, and risky dating behavior.

The data collection was carried out through filling in the instruments developed by the 2017 IDHS, namely, the Women of Fertile Age Questionnaire (WUS) and the Young Men Questionnaire (RP) for unmarried women and men aged 15–24 which were developed by the 2017 IDHS 2017 youth books issued by BKKBN. Data were analyzed using univariate, bivariate, and multivariate. Univariate analysis in the form of percentages, bivariate analysis using the Chi-square test to see the relationship between independent variables and dependent variables, and multivariate analysis using logistic regression tests.

Results

From Table 1 showed that the most female respondents were at ≤16 years of age (98.9%), while the most male respondents are in the age range ≥17 years (73.5%), the most respondents live is come from the city (urban) in women (53.8%) and men (55.3%), the education level of the most respondents is senior high school (SMA) in women (59.5%) and men (58.6%), knowledge about the reproductive system of female respondents was mostly at the good level of knowledge (66.9%), while male respondents were at the most at the poor knowledge level (79.8%), the most sexual behavior of the respondents was were at the level of sexual behavior that is not at risk for female respondents (75.8%)

Table 1: Frequency distribution of respondents by age, area of residence, education level, knowledge of reproduction, age of respondent, age at first menstruation, education level, place of residence, discussion before menstruation, age of first dating, ever using the internet (n = 23.770)

Variable	f	%
Age		
Female		
≤16 years	10.575	98.9
≥17 years	116	1.1
Male		
≤16 years	3.470	26.5
≥17 years	9.609	73.5
Residence Area		
Female		
Urban	6.391	59.8
Rural	4.300	40.2
Male		
Urban	7.237	55.3
Rural	5.842	44.7
Education		
Female		
Primary	383	3.6
Junior High School	1.125	10.5
Senior High School	6.365	59.5
Academy/DI/DII/DIII	524	4.9
DIV/University	2.261	21.2
Male		
Primary	1.199	9.2
Junior High School	2.135	16.3
Senior High School	7.662	58.6
Academy/DI/DII/DIII	281	2.1
DIV/University	1.728	13.2
Knowledge of the Reproductive System		
Female		
Good	7.149	66.9
Poor	3.509	32.8
Male		
Good	2.645	20.2
Poor	10.434	79.8
Risk Sexual Behavior		
Female		
Risk	446	4.2
No risk	8.100	75.8
Male		
Risk	1.240	11.4
No risk	10.845	88.6
Discussion Before Getting Menstruation for the 1st Time		
Female		
Yes	8.281	77.5
No	2.339	21.9
Discussion Before You Have Wet Dreams for the 1st Time		
Male		
Yes	6.146	50.1
No	6.122	49.9
Age for the 1st Time to Get Menstruation		
Female		
≤16 years	10.575	98.9
≥17 years	116	1.1
Age of 1st Time Wet Dreams		
Male		
≤16 years	11.958	91.4
≥17 years	1.121	8.6
Age for the 1st time dating		
Female		
≤16 years	9.294	73.6
≥17 years	2.252	26.4
Male		
≤16 years	7.972	73.5
≥17 years	2.873	26.5
Having Sexual Intercourse		
Female		
≤16 years	5.353	50.1
≥17 years	5.338	49.9
Male		
≤16 years	1.240	11.4
≥17 years	9.605	88.6
Internet Alertness		
Female		
Yes	9.359	87.5
No	1.331	12.4
Male		
Yes	11277	86.2
No	1801	13.8
Hold your boyfriend/girlfriend's hand		
Female		
Yes	9.359	87.5
No	1.331	12.4
Male		
Yes	9.715	89.6
No	1.120	10.3

(Contd...)

Table 1: *(continued)*

Variable	f	%
Hugging boyfriend/Girlfriend		
Female		
Yes	3.224	37.7
No	5.315	62.2
Male		
Yes	6.478	59.7
No	4.357	40.2
Kissing boyfriend/girlfriend on the lips		
Female		
Yes	1.839	21.5
No	6.701	78.4
Male		
Yes	4.509	41.6
No	6.325	58.3
Touching sensitive body areas of boyfriend/girlfriends		
Female		
Yes	619	7.2
No	7.919	92.7
Male		
Yes	3.036	28.0
No	7.793	71.9

and male respondents (88.6%), female respondents were given a discussion before getting their first menstruation (77.5%), while male respondents- men given discussion before getting wet dreams (50.1%), age female respondents had their first menstruation at the age of ≤16 years (98.9%), this age corresponds to the 1st time male respondents experienced wet dreams, namely ≤16 years (91.4%), while the age at first dating was the most ≤16 years for female respondents (73.6%) and male respondents (73.5%), the age at first sexual intercourse among female respondents was ≤16 years (50.1%) and male respondents ≥17 years (88.6%), female respondents have used the internet (87.5%) while male respondents (86.2%), female respondents have held the hand of a boyfriend (87.5%) while male respondents (89.6%), female respondents have never hugged their boyfriends (62.2%) while male respondents have hugged their girlfriends (59.7%), female and male respondents have never kissed their boyfriend's lips and touched sensitive body areas boyfriend (78.4%) and (92.7%) for female respondents as well as 92.7% (7,919 respondents) and 71.9% (7,793 respondents n male).

Table 2 showed that among male respondents there was a relationship between knowledge of reproduction and sexual behavior (p = 0.000), there was a relationship between age and sexual behavior (p = 0.000), there was a relationship between education level and sexual behavior (p = 0.000), There was a relationship between residence and sexual behavior (p = 0,000), there was a relationship between discussions before wet dreams and sexual behavior (p = 0,000), there was a relationship between age at first wet dreams and sexual behavior (p = 0,000), there was a relationship between age dating for the 1st time with sexual behavior (p = 0.002), and there was a relationship between internet use and sexual behavior (p = 0.000). Whereas for female respondents there was a relationship between knowledge of reproduction and sexual behavior (p = 0.012), there was a relationship between age and sexual behavior (p = 0.000), there was a relationship between education level and sexual

Table 2: Relationship between sexual behavior and knowledge about reproduction, age of respondent, age at first menstruation, level of education, place of residence, discussion before menstruation, age at first dating, ever using the internet (n = 23.770)

Variable	Sexual Behavior		p
	Risk	No risk	
Reproductive Knowledge *			
Female			
Good	178	2.763	0.012
Poor	267	5.323	
Male			
Good	322	2.336	0.000
Poor	918	8.509	
Respondent Age			
Female			
≤16 years	50	2.105	0.000
≥17 years	396	5.995	
Male			
≤16 years	61	2.230	0.000
≥17 years	1.179	7.375	
First Age Menstruation			
Female			
≤16 years	738	8.020	0.101
≥17 years	8	80	
Level of education			
Female			
Primary	15	259	0.037
Junior High School	40	259	
Senior High School	232	4.767	
Academy/DI/DII/DIII	29	4.767	
DIV/University	129	1.882	
Male			
Primary	162	737	0.000
Junior High School	195	1.400	
Senior High School	614	5.836	
Academy/DI/DII/DIII	42	222	
DIV/University	222	1.374	
Residence			
Female			
Urban	298	4907	0.009
Rural	148	3193	
Male			
Urban	636	6.204	0.000
Rural	604	4.641	
Discussion before menstruation			
Female			
Ya	363	6.381	0.206
Tidak	83	1.708	
Discussion Before Wet Dreams			
Male			
Yes	704	4699	0.000
No	501	4521	
Age of First Wet Dreams			
Male			
≤16 years	1062	8768	0.000
≥17 years	178	837	
Age of First Dating			
Female			
≤16 years	328	5.966	0.958
≥17 years	118	2.134	
Male			
≤16 years	867	7.972	0.002
≥17 years	373	2.873	
Ever Used the Internet			
Female			
Yes	402	7.379	0.487
No	44	721	
Male			
Yes	1080	8.715	0.000
No	159	890	

behavior (p = 0.037), and there was a relationship between places. Lived with sexual behavior (p = 0.009).

Based on Table 3 above, it was found that male respondents had a chance of 1,322 about knowledge of the reproductive system compared to female respondents who only had a chance of 0.779, age for male respondents had a chance of 0.171 times and 0.360 in female respondents indicated that the age group was ≤16 years and have a greater risk of sexual behavior, residence has a chance of 0.763 for men and 1.310 for women means that both men and women have a greater chance of experiencing the risk of sexual

Table 3: Logistic Regression Test Results

Variable	B	S.E	Wald	df	Sig (p)	95% C.I.for EXP (B)		
						Exp (B)	Lower	Upper
Knowledge about Reproduction								
Female	–0.250	0.100	6.318	1	0.012	0.779	0.641	0.946
Male	0.279	0.069	16.161	1	0.000	1.322	1.154	1.515
Respondent Age								
Female	–1.023	0.152	45.154	1	0.000	0.360	0.267	0.485
Male	–1.765	0.134	174.851	1	0.000	0.171	0.132	0.222
First Age Menstruation	–0.605	0.374	2.615	1	0.106	0.546	0.262	1.137
Level of education								
Female	–0.110	0.046	5.673	1	0.017	0.895	0.818	0.981
Male	0.036	0.029	1.531	1	0.216	1.037	0.979	1.097
Residence								
Female	0.270	0.103	6.867	1	0.009	1.310	1.070	1.604
Male	–0.270	0.060	19.931	1	0.000	0.763	0.678	0.859
Discussion before menstruation	0.158	0.125	1.597	1	0.206	1.171	0.917	1.495
Discussion Before Wet Dreams	0.263	0.061	18.395	1	0.000	1.301	1.153	1.467
The First Age of Wet Dreams	–0.563	0.089	40.272	1	0.000	0.570	0.479	0.678
Age of First Dating								
Female	–0.006	0.110	0.003	1	0.958	0.994	0.801	1.234
Male	–0.201	0.066	9.239	1	0.002	0.818	0.718	0.931
Ever Used the Internet								
Female	–0.113	0.164	0.482	1	0.488	0.893	0.648	1.230
Male	–0.384	0.087	19.409	1	0.000	0.681	0.574	0.808

behavior, the level of education of male respondents has a greater chance of 1,037 greater than the female respondents who only had a chance of 0.895, the age of first dating the female respondents had a chance of 0.994 greater than the male respondents who had a chance of 0.818, while the use of the internet for male respondents had a chance of 0.893 greater than that of the male respondents. The number of female respondents was 0.681, in addition, male respondents had a greater chance of risky sexual behavior such as discussions before wet dreams 1.301, and the first age of wet dreams was 0.570. Meanwhile, female respondents had opportunities for risky sexual behavior such as discussions before menstruation 1,171, and the first age of menstruation had a chance of 0.546.

Table 4 showed that the factor that most influences female respondents was age (p = 0.000) with a chance of 0.363 indicating that age of female respondents has a smaller effect when compared to male respondents, and the factor that most influences female respondents was the place of residence (p = 0.032) with a chance of 1.251 indicated that place of residence has a strong influence on sexual behavior among adolescents, while the factor affecting male respondents was knowledge (p = 0.003) with a chance of 1.240 when compared to female respondents, age (p = 0.000) with a chance of 0.165 indicating that the age of the male respondents has a big influence on sexual behavior, age at first dating (p = 0.019) with a chance of 1.178, place of residence (p = 0.000) with a chance of 0.788 indicating that the influence on sexual behavior, discussion before wet dreams (p = 0.000) with a chance of 1,320 first age wet dreams (p = 0.000) has a chance of 0.693 which indicates that age in male respondents has a greater influence on sexual behavior, as well as internet use (p = 0.000) chance of 0.622 indicates that the use of the internet during adolescence affects the risk of sexual behavior.

In theory, logistic regression analysis can be analyzed from the p value (sig) and Exp (B), where if the p-value ≤ 0.05 the variable will have an influence on the dependent variable; the magnitude of the effect can be predicted through the Exp (B) value. However, if the p-value > 0.05 in theory the independent variable can have an influence on the dependent variable, logostic regression analysis can be carried out with the Exp (B) value by ignoring the p value, where the Exp (B) value was ≥1.5.

Based on the value of Exp (B) it can be concluded that:

Female respondents

a) Odd ratio (OR) of sexual behavior about age = 0.363, indicating that respondents who were <16 years old have a 0.363 times greater influence on sexual behavior when compared to those who were more than 17 years old

Table 4: Multivariate analysis the influence of knowledge about the reproductive system, age, education level, and place of residence

Variable	B	S. E	Wald	df	Sig (p)	95% C.I.for EXP (B)		
						Exp (B)	Lower	Upper
Female								
Age	–1.014	0.157	41.578	1	0.000	0.363	0.267	0.494
Residence	0.224	0.105	4.590	1	0.032	1.251	1.019	1.536
Male								
Knowledge	0.215	0.072	8.848	1	0.003	1.240	1.076	1.428
Age	–1.801	0.144	156.953	1	0.000	0.165	0.125	0.219
Age for first dating	0.164	0.070	5.470	1	0.019	1.178	1.027	1.352
Residence	–0.238	0.063	14.052	1	0.000	0.788	0.696	0.893
Discussion about wet dreams	0.278	0.063	19.346	1	0.000	1.320	1.167	1.494
The first age of wet dreams	–0.367	0.092	15.796	1	0.000	0.693	0.578	0.830
Ever Used the Internet	–0.476	0.097	24.152	1	0.000	0.622	0.514	0.751

b) OR of sexual behavior about place of residence = 1.251 indicating that the place where the respondent lives in the city has an influence on sexual behavior 1,251 times greater when compared to respondents who live in the village.

Male respondents

a) OR of sexual behavior regarding knowledge of reproductive health = 1.240, indicating that the respondent's poor knowledge has an influence on sexual behavior 1,240 times greater when compared to respondents who have good knowledge
b) OR of sexual behavior about age = 0.165, indicating that respondents who were more than 17 years old have a 0.165 times greater influence on sexual behavior when compared to those who were <16 years old
c) OR of sexual behavior regarding age at first dating = 1.178 indicating that respondents who had a boyfriend at the age of <16 years had an influence on sexual behavior 1,178 times greater when compared to respondents who were dating at the age of more than 17 year
d) OR of sexual behavior about residence = 0.788, indicating that respondents who live in cities have a 0.788 times greater influence on sexual behavior when compared to respondents who live in villages
e) OR of sexual behavior about discussions before wet dreams = 1.320, indicating that respondents who were given discussions before wet dreams had a 1.320 times greater influence on sexual behavior when compared to respondents who were not given discussions about wet dreams
f) OR of sexual behavior regarding the first age of wet dreams = 0.693 indicating that respondents who experienced wet dreams were <16 years old had an influence on sexual behavior 0.693 times greater when compared to respondents who had wet dreams for more than 17 years
g) OR of sexual behavior about the first age of wet dreams = 0.693 indicating that respondents who experienced wet dreams were <16 years of age had an influence on sexual behavior 0.693 times greater when compared to respondents who had wet dreams for more than 17 years
h) OR of sexual behavior about having used the internet = 0.622 indicating that respondents who have used the internet have 0.622 times greater sexual behavior when compared to respondents who do not use the internet.

Discussion

Hubungan antara pengetahuan tentang reproduksi dengan perilaku seksual

Based on Table 5.2, it shows that there was a relationship between knowledge of reproduction and sexual behavior (p = 0.000), in male respondents with a greater chance of 1,322 than female respondents. The results showed that most female respondents had good knowledge about the reproductive system (66.9%), while male respondents were mostly at the poor knowledge level (79.8%). In this case, adolescents who have a good level of knowledge will understand the bad effects of sexual behavior, while adolescents who have low knowledge will influence adolescents' attitudes toward sex and risky sexual behavior [25].

Adolescents are one of the groups with special needs in the field of sexual and reproductive health, because these adolescents are not only often involved in risky sexual behavior but also lack of information and access to reproductive health services, causing these adolescents to be less exposed to the information they should get. Adolescents who lack knowledge about sex and sexuality will tend to engage in sexual activity that was reckless and unattended so that it will have a negative impact on these adolescents [26].

Indonesia was one of the countries that still consider taboo regarding the discussion of sexuality and reproductive health behavior in the family, school, and community environment. However, in the current era of globalization, western culture has a lot of influence and brings freedom and very open access to any information. This situation will have a negative impact on adolescents with the emergence of reproductive health behaviors that can be carried out actively and freely, this will worsen the situation if these adolescents are not given prior knowledge about sexual behavior [27]. In contrast to Indonesia, one school in the UK has used a curriculum for its students, which includes sex education in subjects such as life skills, social sciences, integrated science, including sexual and reproductive health education in Biology. From this subject matter, efforts to address issues concerning sexually transmitted infection, HIV/AIDS, and teenage pregnancy were given to adolescents who were in education. In addition, there have been several programs that have been disseminated on television and radio stations targeting youth groups; the aimed of this program was to provide adolescents with adequate knowledge about issues of sex and sexuality [28].

The relationship between age and sexual behavior

Based on Table 1, it showed that the riskiest sexual behavior among female respondents was at the

age of <16 years with a percentage of 98.9% (10,575 respondents), while most male respondents were in the age range more than 17 years with a percentage of 73, 5% (9,609 respondents). Table 5.2 shown that there was a relationship between age and sexual behavior (p = 0.000) in male and female respondents. Based on the table above, age has a chance of 0.171 times for male respondents and 0.360 for female respondents, this indicated that the age group <16 years has a greater risk of engaging in risky sexual behavior.

It was in accordance with [29] who conducted a study on 258 adolescents, where (7.5%) had made their sexual debut before the age of 14 years (7.8% girls and 7.2% boys), as many as 2211 (64.4%) had made sexual debuts at the age of more than 14 years (66.4% female and 62.2% male) and as many as 963 (21.1%) have not yet made their sexual debut (25.8% female and 30.7% male). The mean age of adolescents making sexual debut was 15.4 years, with a standard deviation (SD) of 1.5 for the total sample. In the study, it was found that girls had an earlier sexual debut, with a mean age of 15.3 years (SD = 1.47), than boys, with a mean age of 15.5 years (SD = 1.53). This study was in accordance with [30] which states that there was a relationship between the age of adolescent girls at earlier menarche with sexual behavior, where the early menarche group had more experience in kissing and caressing the opposite sex than the group who experienced menarche at normal age (OR, 1 54; 95% confidence interval [CI], 1.28–1.87). In addition, the group who experienced menarche earlier had more experience with intercourse than the normal menarche group (OR, 2.35; 95% CI, 1.65–3.36). Even adolescents in the early menarche group had more experiences of being victims of sexual violence (OR, 2.89; 95% CI, 1.98–4.22) and being perpetrators of sexual violence (OR, 13.55; 95% CI, 6.61–27.78) than the normal age menarche group. In addition, the early menarche group experienced more sexual intercourse without using contraception (OR, 1.92; 95% CI, 1.06–3.46) so that there was a higher risk of pregnancy (OR, 5.72; 95% CI, 2.31–14.15).

In this case, sexual behavior among adolescents will become a concern, especially if the behavior was risky. The most frequent indicator of risky sexual behavior was having intercourse for the 1st time at a young age [31]. Age and experience for the 1st time in sexual behavior can affect the satisfaction experienced by a person in the following years. A positive first sexual experience will be associated with physical and emotional satisfaction at subsequent opportunities [32]. Meanwhile, the first negative sexual experience will damage the self-image of adolescents [33]. Adolescents who engage in sexual behavior for the 1st time at an early age will experience signs and symptoms such as depression, distorted patient self-image [33], attention deficit, tendency to have naughty, aggressive behavior, difficulty in interacting with others [34], and regret about initiating sexual behavior due to partner pressure or impulsivity [35].

The relationship between education level and sexual behavior

The education level of respondents was a factor related to sexual behavior, based on Table 5.1; most respondents were in SMA education with a percentage of 59.5% female (6,365 respondents) and 58.6% male (7,662 respondents). The results showed that there was a relationship between the level of education and sexual behavior with a chance of 1.037 indicating that the level of education of male respondents was much greater than that of female respondents. The results of this study are in accordance with [36] stating that nearly 30% of students in the comparison group started premarital sexual behavior in the ninth grade, compared to 23% of students in the intervention group, even though that comparison had a 1.76 times greater risk of initiating oral sex and 2.67 times greater to initiating oral sex. Exposure to premarital sexual behavior that was carried out orally and anally was increasing among adolescents and young adults [37]. However, until now no high school age program has addressed or directly evaluated the results of anal and oral sex. Research shows that teens perceive oral sex to have fewer health consequences than vaginal sex [38].

The relationship between residence and sexual behavior

Based on Table 5.2, it showed that there was a relationship between residence and sexual behavior with a p-value = 0.000 for male respondents and a p-value = 0.009 for female respondents with an opportunity of 0.763 for men and 1.310 for women, so that both men and women. Women have a greater chance to experience the risk of sexual behavior with the percentage of respondents mostly coming from cities (urban) with a percentage of women 53.8% (6,391 respondents) and men 55.3% (7,237 respondents). This was in accordance with the research [39] which stated that there was a relationship between residence and risky sexual behavior with the percentage (39.6%) of adolescents who live in urban areas and (60.4%) of adolescents who live in rural areas with p value = 0.03 and (OR = 1.68, 95% CI (1.04, 2.70) for adolescents living in rural areas, so it can be concluded that adolescents in rural areas have a higher likelihood of initiating sexual intercourse than adolescents living in urban areas [40] which stated that there was a relationship between adolescents and parents who live in rural areas with a percentage of 49.2% (OR 1.92; 95% CI: 1.28–2.94), adolescents whose parents lived in rural areas have a higher chance of engaging in sexual activity than adolescents who lived in rural areas. his parents live

in urban areas. This could be because youth from rural areas lack adequate access to information related to reproductive health and risky sexual behavior. Adolescents living in cities have greater knowledge of reproductive health than adolescents who live in rural areas [41].

The relationship between age at first dating and sexual behavior

The hallmark of psychological maturity was marked by the emergence of its own pleasure when associating with the opposite sex and arriving at behavior that has become a common consumption, namely dating. Based on Table 5.2, it showed that there was a relationship between age at first dating with sexual behavior (p = 0.002), with a chance of 0.818 and the percentage of dating age at most, which was <16 years for female respondents (73.6%) and male respondents (73.5%). Research result [42] conducted on students in grades six, seven, and eight showed that on average students at that age were familiar with dating. Where the percentage showed 868 (30.6%) in sixth grade students, 911 (32.1%) in seventh grade students, and 1,057 (37.3%) in eighth grade students. Of the 1,653 students who were already dating, 77% reported verbal/emotional abuse, 33% reported physical abuse, 20% reported engaging in threatening behavior, 15% reported sexual assault, 13% reported aggressive behavior, and 6% reported stalking a partner. Beside that the research [43] showed that there was a relationship between age at first dating with sexting behavior, where in younger girls will have more emotional problems associated with the likelihood of involvement almost 3 times greater in sexting with a score (OR = 2.91; p < 0.001). Meanwhile, male adolescents who were younger were 3 times more likely to engage in sexting (OR = 2.89; p < 0.001).

Since the last decade, the involvement of adolescents in having romantic relationships (dating) and sexual activities has been increasing, and this involvement was considered a normative aspect because adolescents are experiencing development towards young adulthood [44]. This indicated that relationships and sexuality were related to the expected behavior patterns from adolescents to young adulthood, as evidenced by prevalence statistics from many countries in the west (United States, United Kingdom, and the Netherlands) showing that more than half of adolescents report having had intercourse sexuality by the time they were 18 years of age [45], [46], [47].

The relationship between internet use and sexual behavior

The use of the internet or online communication was a trending phenomenon, especially among adolescents. At present, many teenagers were involved in online social networking, both as producers and as users of online information [48], [49]. However, the use of the internet was often used by teenagers to provide information about their personalities to others who may not be very well known [50]. Teens, who use the internet to communicate online with strangers, will pose risks to the teenagers themselves, such as sexual harassment conducted online [51] or directly access dangerous content and content that violates privacy [52].

Based on Table 5.2 showed that there was a relationship between internet use and sexual behavior (p = 0.000) with a chance of 0.681 indicating that internet use during adolescence has an influence on sexual behavior with the presentation of internet use in female respondents who have used the internet (87.5%) while male respondents (86.2%). The results of previous research indicate that there are gender differences when adolescents engage in risky sexual behavior, where initially male adolescents only seek sensations when engaging in risky sexual behavior, for example, the use of alcohol or never being present at school [53]. However, nowadays, risky sexual behavior among male adolescents has changed, namely that the goal of male adolescents in consuming alcohol was to have anal intercourse with the same sex [54]. In addition, teenage boys will usually deliberately expose and reveal information about their personalities online [55]. In contrast to girls who are affected by acts of risky sexual behavior, teenage girls will usually tell when their online communication results in unwanted situations [56].

In fact, there were many benefits that can be obtained from using information through internet access, including obtaining information anytime and anywhere, and only required the support of mobile devices such as smartphones or android phones, laptops, computers, tablets, and iPhones [57]. However, the use of smartphones and the internet in adolescents was often used to interact with known and unknown friends to build and maintain social relationships [58]. Such communication takes place independently from time and place and was relatively easy to use, online interaction was a new way to encourage the development of adolescent identity, self-expression, intimate relationships, and social welfare [59]. Thus [60] stated that internet use cannot be generalized to adolescents aged 18 years and under, because it can increase the opportunity to access the internet without supervision, besides that it can also facilitate sexual requests made online (i.e. first approached by means of online introductions with the intention of doing sex), partner seeking, and sexual risk taking with new friends. Nearly (80.66%) adolescents use internet access at home and one third (32.95%) access using personal cell phones. The average intensity of internet use among adolescents was more than 1 h/day (30.30%) with OR 2.07, 95% CI 1.56–2.75 and only about 3%

of adolescents reported never using the internet. From the results of the study, it was also reported that there was an effect between internet use and online sex partner search (OR = 2.65, 95% CI 1.51–4.67, p < 0.001), and having been asked to have sex online (OR = 10.12, 95% CI 6.11–16.76, p < 0.001). From these results adolescents who were approached online for sex were almost 3 times more likely to be sexually active (OR = 2.80, 95% CI 2.06–3.81, p < 0.001) and those who reported looking for sex partners online nearly 4 times more likely to be sexually active (OR = 3.98, 95% CI2.11–7.48, p <0.001).

In this case, having good communication from parents about Internet use can help teenagers to limit excessive Internet use [61]. In addition, it can help teens to be more careful in maintaining their privacy online [62]. Therefore, the existence of restrictive mediation from parents can teach adolescents valuable knowledge and skills, thereby instilling their children's resilience to online risks. Restrictive mediation from parents aims to reduce or prohibit children from behaving that they do not want. Parents are more restricting and spending time with children by watching appropriate content so as not to worry about the effects of negative media [63]. Sharing the internet between parents and children can fight risky online behavior, but it will also provide benefits for both parents and children. First, when using the internet together, parents can directly see the type of content that was accessed by children; so that children can refrain from viewing risky online sites. Second, when around children, parents can pay attention to their teen's online behavior and may indicate verbally or nonverbally which type of content they prefer [64].

Conclusion

Based on the results of the study, it can be concluded that male adolescents have many factors that influence high-risk sexual behavior than female adolescents. Therefore, information on determinant factors of high-risk adolescent sexual behavior can be used as a basis for developing policies for developing interventions in solving problems of premarital pregnancy and early marriage due to high-risk sexual behavior among adolescents, both in schools and in the community. The results of the research can also be used as a Gender Program (PIK for youth) as part of the BKKBN program. It is hoped that it can include curricula related to reproductive health and reproductive problems from the junior high school level so that adolescents can get information and form the right attitude about sexuality.

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