

## Multilevel Analysis on the Predictors of Safe Sexual Behavior among Girl Adolescents in Karanganyar, Central Java

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### ABSTRACT

**Background:** Studies have shown that the number of adolescents who have premarital sex is increasing. Unsafe sex can increase the risk of sexual transmitted disease, unwanted pregnancy, and suicide in adolescents. The study aimed to determine the associations between attitude, subjective norm, perceived behavior control, equal gender relation, and media exposure, on safe sexual behavior among girl adolescents in Karanganyar, Central Java.

**Subjects and Method:** This was an analytic and observational study with cross-sectional design. The study was conducted in 25 senior high schools in Karanganyar, Central Java, from Desember, 2017 to January, 2018. A total sampel of 200 girl adolescents were selected by stratified random sampling, consisting of 8 girl adolescents from each of the 25 senior high schools. The dependent variable was safe sexual behavior. The independent variables were attitude, subjective norm, perceived behavior control, equal gender relation, and media exposure on safe sexual behavior. The data was collected using questionnaire and analyzed by multilevel analysis. The contextual effect of school, which distinguished rural and urban schools, on safe sex behavior was measured by intra-class correlation (ICC).

**Results:** Positive attitude ( $b= 0.41$ ; 95% CI= 0.14 to 0.69;  $p= 0.004$ ), positive subjective norm ( $b=0.23$ ; 95% CI= 0.21 to 0.43;  $p= 0.031$ ), strong perceived behavior control ( $b= 0.69$ ; 95% CI= 0.44 to 0.96 ;  $p< 0.001$ ), equal gender relation ( $b= 0.41$ ; 95% CI =0.18 to 0.63;  $p<0.001$ ), and exposure to media on safe sex behavior ( $b= 0.17$ ; 95% CI= -0.02 to 0.36;  $p= 0.085$ ), predicted positively the likelihood of safe sexual behavior in girl adolescents. The contextual effect of school on safe sex behavior was small with ICC= 5.55%.

**Conclusion:** Positive attitude, positive subjective norm, strong perceived behavior control, equal gender relation, and exposure to media on safe sex behavior, predict positively the likelihood of safe sexual behavior in girl adolescents.

**Keyword:** predictor, safe sexual behavior, multilevel analysis

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### BACKGROUND

The number of adolescents in Indonesia who engage in sexual behavior before marriage has increased. This can be seen from the increase of the number of adolescents aged 15-24 years who are dating since 2007 based on the results of the Indonesian Demographic Health Survey (SDKI) in 2012. Dating and sexual behavior

have a very close relationship. Teenage sexual behavior when dating include, holding hands, kisses, petting and sexual intercourse using condoms/not using condoms (Ministry of Health, 2014; BKKBN et al., 2013). Adolescents in Indonesia also engage in sexual behavior in the form of masturbation, sexual intercourse with female sex workers and have more than one

sexual partner (Rokmah and Khoiron, 2015).

Unsafe sexual behavior is one of the medium of transmission of sexually transmitted infections (STIs). STIs increase mortality and morbidity rates among young women. STIs cause cervical cancer, complications in pregnancy, reproductive health problems and fertility issues. STIs also have an impact on individual and nationwide economies. STIs indirectly increased the spread of Human Immunodeficiency Virus (HIV) (WHO, 2016; Burns et al., 2016).

Unsafe sexual behavior can lead to pregnancy in adolescents. A pregnant teenager is at a high risk for an abortion, bleeding, infection / sepsis, hypertension, embolism, complications in labor and an increased risk of maternal death. Babies who are born are at high risk for perinatal death, neonatal death, premature birth and low birth weight (Neal et al., 2016; Azevedo et al., 2015). Adolescents who are pregnant are at risk of committing suicide (Chan et al., 2016).

Based on the preliminary study conducted by researchers at one of Vocational High Schools (SMK) in Karanganyar Regency, there were teachers who found images, applications and videos that had porn contents on students' mobile phones. There were students who had unsafe sexual intercourse, there were students who were pregnant before getting married, so they chose to marry in a young age and there were students who had an abortion.

Based on the background above, the researchers are interested in analyzing the relationship of attitudes, behavior control perceptions, subjective norms, gender and media exposure with safe sexual behavior in female adolescent using multilevel analysis in Karanganyar District.

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## SUBJECTS AND METHOD

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### 1. Research Design

This study employed observational analytic method with cross-sectional approach. It was conducted from December 2017 to January 2018.

### 2. Population and Sampels

The population in this study were all female adolescents in Karanganyar District. The subjects in this study were female adolescents who live in Karanganyar District. The samples were taken by using stratified random sampling method with the restriction criteria of girls aged 15-18 years old, young girls residing in Karanganyar district and female adolescent enrolling in one of SMA / SMK in Karanganyar Regency. The number of subjects in this study was 200.

The sampling in this study used strata based on the location and school status. In this study, researchers took a sample of 25 schools and from each school, 8 subjects were taken randomly. This study took 18 schools in urban areas consisting of 2 State SHS, 2 Private SHS, 1 State VHS (Vocational High School) and 13 Private VHS. This study took 7 schools in rural areas which consisted of 2 State SHS, 1 Private SHS, 3 State VHS and 1 Private VHS.

### 3. Variables

The dependent variable in this study was the safe sexual behavior and the independent variables were attitudes, behavior control perceptions, subjective norms, gender relations and media exposure.

### 4. Operational Definition

The operational definition of attitude is the response of adolescents in the form of positive or negative responses to the safe sexual behavior. Perception of behavior control is a belief of the female adolescents to be able to control the safe sexual behavior.

Subjective norms are rules that develop in teenage peer groups that have

the power to influence / pressure teenagers to engage in safe sexual behavior. Gender relations are a complex interaction between women and men, social values, culture, history of social systems and regulations on the interaction of women and men that do not generate gender inequality in girls.

Media exposure is the exposure of respondents to various media that influence the safe sexual behavior. Safe sexual behavior is the behavior of respondents which are based on the sexual desire, whether it is done on the opposite sex or the same sex that does not cause a risk.

### 5. Research Instruments

In this study, researchers used an instrument in the form of questionnaires. The questionnaire in this study is a closed questionnaire where the questions have been prepared alternate answers so that respondents can choose the appropriate answer.

### 6. Data Analysis

The analysis used in this study is univariate and multivariate analysis. Univariate analysis is used to describe the characteristics of the subjects. Multivariate analysis in this study used multilevel analysis with multiple linear regression test analysis. The variables in the first level are the individual variables, namely attitude, perception of behavior control, subjective norm, gender relation, media exposure and the safe sexual behavior. The second level variable is the school's contextual influences: the school in the village and in the city.

## RESULTS

### 1. Univariate Analysis

This study was conducted in 25 schools in Karanganyar District with 200 subjects. Table 1 shows that most of the subjects were 17 years old (41.5%). Age when they first dating is divided into 4 categories.

Most of the subjects date at the age of 12-15 years for about 164 (82%). Most of the subjects came from Mindana Gondangrejo for about 32 people (16%).

**Table 1. Sample Characteristics**

Characteristics	n	%
Age		
15	30	15
16	68	34
17	83	41.5
18	19	9.5
Age when first dating		
Never	4	2
10-11	6	3
12-15	164	82
16-17	26	13
Address (District)		
Colomadu	16	8
Gondangrejo	32	16
Jaten	26	13
Jatipuro	8	4
Jatiyoso	4	2
Jenawi	1	0.5
Jumantono	3	1.5
Jumapolo	4	2
Karanganyar	27	13.5
Karangpandan	11	5.5
Kebakkramat	6	3
Kerjo	8	4
Matesih	7	3.5
Mojogedang	10	5
Ngargoyoso	21	10.5
Tasikmadu	4	2
Tawangmangu	12	6

### 2. The Result of Multilevel Analysis

Table 2 shows the results of multilevel analysis. There was a positive relationship between adolescents' attitudes about the safe behavior and safe behavior in female adolescents. The regression coefficient of each increase in a unit of attitude score increased the score of safe sexual behavior by 0.41 units; and the relationship was statistically significant ( $b = 0.41$ ; 95% CI= 0.14 to 0.69;  $p = 0.004$ ).

There was a positive relationship between adolescent perceptions about the safe behavior and the safe behavior in female adolescents. The regression coeffi-

cient of each increase of 1 unit of perception score increased the score of safe sexual behavior by 0.69 units; and the relationship was statistically significant ( $b = 0.69$ ; 95% CI= 0.44 to 0.96;  $p < 0.001$ ).

There was a positive relationship between subjective norms and safe behavior in female adolescents. The regression coefficient of each increase of 1 unit of perception score increased the score of safe sexual behavior by 0.23 units; and the relationship is statistically significant ( $b = 0.23$ ; 95% CI= 0.21 to 0.43;  $p = 0.031$ ).

There was a positive relationship between gender relations and the safe behavior in female adolescents. The regression coefficient of each increase of 1

unit of perception score increased the score of the safe sexual behavior by 0.41 units; and the relationship was statistically significant ( $b = 0.41$ ; 95% CI= 0.18 to 0.63;  $p < 0.001$ ).

There was a positive relationship between media exposure and the safe behavior in female adolescents. The regression coefficient of each increase of 1 unit of perception score increased the score of safe sexual behavior by 0.17 units; and the relationship was statistically close to significant ( $b = 0.17$ ; 95% CI= -0.02 to 0.36;  $p = 0.085$ ). The school's contextual influence on safe sexual behavior in adolescents was very small and was statistically close to significant (ICC= 5.55%).

**Table 2. The Result of Multilevel Analysis**

Independent Variable	Coef.	95% CI		p
		Lower Limit	Upper Limit	
<b>Fixed Effect</b>				
Attitude	0.41	0.14	0.69	0.004
Perception	0.69	0.44	0.96	< 0.001
Norm	0.23	0.21	0.43	0.031
Gender	0.41	0.18	0.63	<0.001
Media	0.17	-0.02	0.36	0.085
<b>Random effect</b>				
School var(-cons)	6.30e-20	1.40e-20		
Log likelihood	= -434.383			
LR test vs. linear regression	p=1			
ICC	5.55%			

## DISCUSSIONS

### 1. The relationship between attitude and sexual behavior among girl adolescents in Karanganyar

The result of this study showed that there was a relationship between attitude and sexual behavior of girl adolescents in Karanganyar. This study was in line with a study by Mangando et al. (2014) which stated that there was a relationship between attitude and adolescents' sexual behavior. This study was also supported by James and Abieyuwa (2013), who stated that girl adolescents attitudes to have unsafe sexual

behavior affected unsafe sexual behavior of girl adolescents.

Espada et al. (2016) stated the attitudes of adolescents affected their intention to have safe sexual behavior. Similar thing also stated by Scalco et al. (2017), attitude was one of the factors that affect the individual's behavior, the stronger the individual's positive attitude to do something, the stronger the individual's intention to perform that particular behavior.

Based on the description above, the writer concluded that there was a relationship between attitude and safe

sexual behavior among girl adolescents through the intention.

### **2. The relationship between perceived behavior control and safe sexual behavior among girl adolescents in Karanganyar**

The result of this study showed that there was a relationship between perceived behavior control and safe sexual behavior of girl adolescents in Karanganyar. This study was in line with a study by Espada et al. (2016) which stated that perceived behavior control of adolescents affected safe sexual behavior. Perceived behavior control has an important role in someone's behavior. Someone's perceived behavior control was greatly affect his/her intention in behaving (Mcdermott et al., 2015). Perceived behavior control was influenced by control belief (Osorio et al., 2015).

Based on the description above, the writer concluded that there was a relationship between perceived behavior control and safe sexual behavior among adolescents. Perceived behavior control was influenced by control belief. Perceived behavior control was greatly affect adolescents' intention in having safe sexual behavior.

### **3. The relationship between subjective norm and safe sexual behavior among girl adolescents in Karanganyar**

The result of this study showed that there was a relationship between subjective norm and safe sexual behavior of girl adolescents in Karanganyar. This study was in line with a study by Negeri (2014) which stated that adolescents who got pressure from the subjective norm of peer group to have sexual activity have a significant relationship to have unsafe sexual behavior with more than one partner. Espada et al. (2016) also stated that subjective norm affect the

intention of adolescents to have safe sexual behavior.

Subjective norm has an important role in in the stage of adolescents development. Peer groups also have an effect on adolescents behavior. Adolescent groups can have a good or bad influence (Svanemyr et al., 2015; Doornwaard et al., 2015).

Based on the description above, the writer concluded that there was a relationship between subjective norm and safe sexual behavior among girl adolescents. Subjective norm/peer groups affected adolescents' intention to have sexual behavior.

### **4. The relationship of gender relation and safe sexual behavior among girl adolescents in Karanganyar**

The result of this study showed that there was a relationship between gender relation and safe sexual behavior of girl adolescents in Karanganyar. This study was in line with a study by Meyer et al., (2014) which stated that adolescent couples who consider that gender equality was an important thing in relationships have higher rates of contraceptive use. Gender equality in relationships has a positive impact on reproductive health in adolescents. Similar thing also stated by Meyer et al., (2017), in a relationship, there was a gender norm called stereotype. Stereotypes in relationships have a negative impact on reproductive health and sexual health. In the relationship, gender inequality was also found, which in this case was violence.

Based on the description above, the writer concluded that there was a relationship between gender relation and safe sexual behavior among adolescents. In the relationships, there were gender inequalities including marginalization, stereotype, and violence. Gender inequalities have a

negative impact on reproductive health and sexual health.

The women's empowerment framework developed by Sara Hlupekile Longwe used some criterias which were welfare, access, awareness, participation, and control (March et al., 2005). Gender inequalities among girl adolescents can be seen in decision making in a relationship, violence in relationship and stereotypes/marginalization occurring in relationships, families, schools and communities.

Access dimensions can be seen through opportunities of boy or girl adolescents to get information and health services related to safe sexual behavior. The dimension of awareness was the emphasis on adolescents that gender inequality can be changed. This inequality occurred due to the assumption that the socio-economic position of girl adolescents was lower than boy adolescents. Girl adolescents need to realize that they have equal rights in their sexual and reproductive health. The next dimension was the dimension of participation that can be seen from the participation of girl adolescents in the efforts related to their sexual health and reproduction. Dimensions of participation can also be seen in the participation of girl adolescents in decision-making related to sexual health and reproduction. Dimensions of control in adolescents can be seen from how far boy and girl adolescents to have the opportunity to make decisions related to their sexual and reproductive health (Marwanti and Astuti, 2012).

#### **5. The relationship between media exposure and safe sexual behavior among girl adolescents in Karanganyar**

The result of this study showed that there was a relationship between media exposure and safe sexual behavior of girl adolescents in Karanganyar. This study was in line with

a study by Nonsi et al. (2015) which stated that there was a meaningful relationship between media exposure (source of information) and sexual behavior among adolescents.

Nowadays, teenagers interact with their environment through facebook, email, messages, chat, sharing videos/photos on social media and blogs. The advanced technological developments have a positive and negative impact. The positive impact on adolescents was that adolescents can use the technology to access information related to sexual behavior, while the negative impact was that adolescents can access pornographic content. Technological development also increased the risk of unsafe sexual behavior among adolescents (Santrock, 2014).

Based on the description above, the writer concluded that there was a relationship between media exposure and safe sexual behavior among adolescents. The advanced technological developments have a positive and negative impact.

#### **6. The effect of contextual school on relationship safe sexual behavior among girl adolescents in Karanganyar**

The result of this study showed the effect of contextual schools which were the schools in rural and urban areas on safe sexual behavior among adolescents which was very small and statistically insignificant. The result of this study was in contrast with a study by Folayan et al. (2015) which stated that there were some differences in adolescents' sexual behavior in rural and urban areas. The result of this study was statistically significant. Adolescents who live in rural areas were more likely to have unsafe sexual behavior and have more than one sexual partner than adolescents who live in urban areas.

The result of a study by Chen et al. (2016) stated that adolescents from urban area who have safe sexual behavior which was using condom in doing oral and anal sex was higher than adolescents from rural areas, and the result was statistically significant. The result of this study also mentioned that the students who live in rural areas and diagnosed with STD were higher than those from urban areas.

Based on the description above, the writer concluded that great and small influences of contextual schools such as schools in rural and urban areas on safe sexual behavior in every place was different. The effect of contextual schools on safe sexual behavior among adolescents in Karanganyar was very small and statistically insignificant, it was because nowadays, the adolescents in Karanganyar both in rural and urban areas have interacted with the environment through facebook, email, messages, chats, sharing videos/photos on social media, and blogs. The development of advanced technologies have positive and negative impacts. The positive impact on adolescents was that adolescents can use the technology to access the informations, while the negative impact was that adolescents can access pornographic content (Santrock, 2014). Adolescents who access or were exposed to pornographic content increase the likelihood of unsafe sexual behavior (Bogale and Seme, 2014).

The limitation of this study was that this study was susceptible to reporting bias related information given by the respondents to the researcher because the subject of this study has experienced saturation due to the large number of questions that must be answered.

In conclusion, attitude, perceived behavior control, subjective norm, gender, and media exposure can be used as

predictors of safe sexual behavior in adolescents. The effect of contextual school on safe sexual behavior in adolescents was very small.

The result of this study showed that safe sexual behavior among adolescents was affected by attitude, perceived behavior control, subjective norm, gender relation, and media exposure. The result of this study was expected to be implemented in solving the problem of sexual behavior among adolescents.

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