

5-31-2021

## Attitudes Concerning Sexual Behavior towards Risky Sexual Behavior of Sexual Transmitted Infections among Male Adolescents in Indonesia

Helda Helda

*Department of Epidemiology, Faculty of Public Health, Universitas Indonesia, Depok, Indonesia,*  
helda\_dr@yahoo.com

Nurul Muchlisa

*Faculty of Public Health, Universitas Pejuang Republik Indonesia, Makassar, Indonesia,*  
nurulmuchlisa94@gmail.com

Follow this and additional works at: <https://scholarhub.ui.ac.id/kesmas>



Part of the [Biostatistics Commons](#), [Environmental Public Health Commons](#), [Epidemiology Commons](#), [Health Policy Commons](#), [Health Services Research Commons](#), [Nutrition Commons](#), [Occupational Health and Industrial Hygiene Commons](#), [Public Health Education and Promotion Commons](#), and the [Women's Health Commons](#)

### Recommended Citation

Helda H , Muchlisa N . Attitudes Concerning Sexual Behavior towards Risky Sexual Behavior of Sexual Transmitted Infections among Male Adolescents in Indonesia. *Kesmas*. 2021; 16(2): 131-136

DOI: 10.21109/kesmas.v16i2.4845

Available at: <https://scholarhub.ui.ac.id/kesmas/vol16/iss2/10>

This Original Article is brought to you for free and open access by the Faculty of Public Health at UI Scholars Hub. It has been accepted for inclusion in Kesmas by an authorized editor of UI Scholars Hub.

# Attitudes Concerning Sexual Behavior towards Risky Sexual Behavior of Sexual Transmitted Infections among Male Adolescents in Indonesia

Helda<sup>1\*</sup>, Nurul Muchlisa<sup>2</sup>

<sup>1</sup>Department of Epidemiology, Faculty of Public Health, Universitas Indonesia, Depok, Indonesia

<sup>2</sup>Department of Reproductive Health, Faculty of Public Health, Universitas Pejuang Republik Indonesia, Makassar, Indonesia

## Abstract

There has been an increase of sexually transmitted infections (STIs) such as HIV/AIDS worldwide, especially in Indonesia. Several studies on adolescent behavior, especially the male as the main predictor, reported increased in STIs' cases due to risky sexual behavior. This study aimed to show the relationship between attitudes, sexual behavior, and the risks of STIs among male adolescents in Indonesia based on the Indonesia Demographic and Health Survey (IDHS) data in 2017. This cross-sectional study involved 10,547 male adolescents using the total sampling method according to the inclusion and exclusion criteria. Data were analyzed using a complex sample logistic regression test. This study was found that the proportion of risky sexual behavior of STIs was 10% of which 29.8% agreeable attitude male adolescents. Agreeable attitude male adolescents were found able to improve the risk of engaging in risky sexual behaviors of STIs (p-value = 0.018; prevalence odd ratio (POR) = 1.135). The male adolescents who had an agreeable attitude towards sexual behavior could improve the risk of having risky sexual behavior of STIs 1,135 times; however, the attitude variable was not necessarily a major risk factor for the risky sexual behavior of STIs. Knowledge and education were not related to the risky sexual behavior of STIs.

**Keywords:** attitudes, Indonesia, male adolescents, risky sexual behavior, sexually transmitted infections

## Introduction

Overcoming health problems is one of the main focus of many countries in reducing mortality rates. Currently, four out of ten ailments that leads to death originate from infectious diseases.<sup>1</sup> Furthermore, based on the Institute for Health Metrics and Evaluation (IHME) data, it was stated that during the Global Burden of Disease (GBD) in 2017 about 16.5 million people died due to infectious diseases continues to increase annually.<sup>2</sup> An example of an infectious disease that needs special attention is sexually transmitted infections (STIs). More than one million cases of this disease occur every day worldwide,<sup>3</sup> with an increasing number of both curable and incurable STIs.<sup>4-6</sup>

Sexually transmitted infection cases have become a major health problem in Indonesia. Based on the Integrated Biological and Behavioral Surveillance (IBBS) data in 2015, it was found that the prevalence rate of STIs has increased, especially for syphilis, which increased from 5 to 6% annually.<sup>7</sup> The human immunodeficiency virus (HIV) cases have also increased and are estimated to continue until 2025.<sup>6</sup>

Meanwhile, based on the age level, the highest number of HIV cases were experienced by age groups more than 30 years, followed by those between 15 to 24, and someone exposed to HIV would not show symptoms for an average of 8 years. Therefore, the age for first exposure is around 23 years.<sup>7</sup>

The increase in STI cases is inseparable from the result of risky sexual behavior. This behavior in adolescents initially started with premarital sex and can damage an individual's behavior, thereby leading to several adverse health consequences including an increase in cases of sexually transmitted infections.<sup>8-11</sup> There are factors that influence risky sexual behavior in adolescents, which ultimately results in sexually transmitted infections, namely age, gender, place of residence, attitudes, education, knowledge, media roles, lifestyle, and peer influence.<sup>10</sup>

Based on the description above, these factors are generally individual characteristics and an example is the attitude towards sexual behavior. Furthermore, several studies have shown a relationship between attitudes and risky sexual behavior of STIs. A study in Hong Kong recorded about 6.7 times the risk (95%CI = 4.10-10.96)

**Correspondence\*:** Helda, Department of Epidemiology, Faculty of Public Health Universitas Indonesia, A Building 1st Floor Kampus Baru UI Depok 16424, Indonesia, E-mail: heldanazar1@gmail.com, Phone: +62-852-1668-8457

Received : February 27, 2021

Accepted : April 14, 2021

Published : May 28, 2021

of adolescents engaging in risky sexual behavior.<sup>11</sup> Another study conducted on male adolescents in Tehran, Iran, showed that the attitudes towards sexuality 1.97 (95%CI = 1.28-3.04) affected risky sexual behavior.<sup>12</sup> In addition, based on the data from the 2017 Indonesia Demographic and Health Survey (IDHS), it was reported that the attitudes of adolescents that undergo sexual intercourse before marriage increased from 7% to 8%.<sup>13</sup>

Various studies have reported several factors affecting risky STIs other than attitudes. For example, the survey by Maryatun stated that street children with a lack of knowledge have four times greater chance of engaging in risky premarital sexual behavior than those with good knowledge (OR = 4.42, 95%CI = 1.797-10.894).<sup>14</sup> A study in France reported that the influence from peers was 2.7 times effect on risky sexual behavior (95%CI = 1.42-5.50).<sup>15</sup> Education and the use of alcohol and drugs are also other factors associated with it.<sup>16-20</sup>

The involvement of male adolescents in risky sexual behavior has become a significant public health problem. Furthermore, negative consequences as a result of this behavior and the risk of contacting sexually transmitted infections are often associated with males as the main predictor.<sup>18</sup> The proportion of male adolescents having multiple sexual relationship is four times compared to females.<sup>19</sup> They also experienced a twofold increase in having relationships with different partners,<sup>20</sup> and with condom use, they are substantially lower than adult males.<sup>21</sup>

Based on the data and information above, and since STIs have a significant impact on the health sector. Therefore, this study aimed to know relationship between attitudes, sexual behaviors, and sexually transmitted diseases among male adolescents in Indonesia by measuring the data and performing multivariate analysis. It also aimed to know the interactions and its confounders.

## Method

This study was conducted using secondary data obtained from the 2017 Indonesian Demographic and Health Survey (IDHS) and used a cross-sectional design. The 2017 IDHS used a two-stage sampling design with stratification into urban and rural areas. At stage one, the samples were selected based on the IDHS frame, while the second stage involved a complete listing of households in each selected cluster. This study was analyzed in March to July 2020 in Depok City, West Java. The sample in this study were all-male adolescents between the ages of 15 to 24, total population, and met the inclusion and exclusion criteria. The inclusion criteria were all male adolescents in Indonesia that were respondents in the 2017 IDHS between ages 15 to 24, not married, and had complete data. While the exclusion criteria were male adolescents without complete data and were married. The sampling flow started from a households

sample totaling 49,261 and from 13,860 respondents of unmarried male adolescents between ages 15 to 24. However, only 13,079 were successfully interviewed, while 10,574 male adolescents had complete data. Out of the total samples used from the data of IDHS, only 10,547 met the criteria.

The dependent variable of this study was male adolescents that had sexual intercourse before marriage.<sup>22,23</sup> The independent variable was their statement on risky sexual relations that was obtained from the answers agree or disagree of questions 718, 719, 720a-e, as well as several confounding variables including: 1) Age refers to the lifespan of the respondents from birth to the time 2017 IDHS data were collected and divided into two categories, namely "15-19" and "20-24"; 2) Education was defined as the last level that the respondent completed and was categorized into "Low" (primary and junior high school) and "High" (senior high school, diploma, and bachelor); 3) Residence refers to the dwelling place of the respondents' and was divided into "Urban" and "Rural" categories; 4) Knowledge refers to everything the respondents knew about STIs and risky sexual behavior that categorized into "Less" and "Good"; 5) Access to information refers to the use of the media in receiving information on reproductive health and STIs and was categorized into "Less" and "Good"; 6) Use of substances refer to the use of cigarettes/alcoholic drinks/drug, and was divided into "Yes" and "No"; and 7) Peer influence is the encouragement from friends that had sexual intercourse, which was used in shaping the respondents' sexual behavior. It was divided into "Take effect" and "No effect".

The analysis was carried out in stages starting from univariate, bivariate, and finally multivariate analysis. The univariate analysis displayed the percentage of each study variable based on its category. At the same time the bivariate was conducted to examine the relationship between the independent (attitude) and the dependent variables (sexual behavior), and also evaluated the confounding variables. A multivariate analysis was carried out using complex sample logistic regression based on the bivariate analysis' selection result. Furthermore, an interaction and confounding test was carried out by eliminating variable, starting with the one with the highest p-value.

## Results

The total number of respondents was 10,547. Based on Table 1, it was found that 10.0% of male adolescents were at risk of contacting STIs and 29.8% had an agreeable attitude. Based on the results from the analysis in Table 2, statistically, there were differences in the sexual behavior among male adolescents that possess the attitude of agreeing and disagreeing (p-value = 0.016). Those who

have a consenting attitude towards sexual behavior had a risk of 1.127 (95%CI = 0.940-1.352) times engaging in risky sexual behavior and contacting STIs compared to male adolescents with a disagreeing attitude. When viewed from the p-value in Table 2, only the variable for age and education level had a p-value greater than 0.05. In contrast other variables, such as residence, knowledge, access to information media, use of the substance, and peer influence had a p-value that was greater than 0.05. However, the variables of age and level of education would still be included in the multivariate modeling because there was a substantial relationship.

The analysis in this study was carried out using the interaction and confounding test. The interaction test was carried out by compiling a model that includes all variables, including those involving interactions. When the p-value is less than 0.05, it is stated that the variable has interactions. However, based on Table 3, the results of the interaction tests carried out on each variable obtained a p-value that was more than 0.05. This means that statistically there were no interacting variables. In the full model (Table 4), the prevalence odd ratio (POR) attitude

value was 1.135 (95%CI = 0.944-1.364). It was used as the reference value in calculating the changes that occur

**Table 1. Distribution of Respondents with the Risky Sexual Behavior of Sexually Transmitted Infections**

| Variable                    | Category        | n     | %    |
|-----------------------------|-----------------|-------|------|
| Sexual behavior             | Risk of STIs    | 1,053 | 10.0 |
|                             | No risk of STIs | 9,494 | 90.0 |
| Attitude                    | Agree           | 3,142 | 29.8 |
|                             | Disagree        | 7,405 | 70.2 |
| Age                         | 15-19 years     | 6,165 | 61.0 |
|                             | 20-24 years     | 4,382 | 39.0 |
| Education                   | Low             | 2,687 | 25.5 |
|                             | High            | 7,860 | 74.5 |
| Residence                   | Urban           | 6,165 | 58.4 |
|                             | Rural           | 4,382 | 41.6 |
| Knowledge                   | Less            | 6,578 | 62.4 |
|                             | Good            | 3,969 | 37.6 |
| Access to information media | Less            | 9,792 | 92.8 |
|                             | Good            | 755   | 7.2  |
| Use of substance            | Yes             | 7,119 | 67.5 |
|                             | No              | 3,428 | 32.5 |
| Peer influence              | Take effect     | 6,305 | 59.8 |
|                             | No effect       | 4,244 | 40.2 |

Note: STIs = Sexually Transmitted Infections

**Table 2. Relationship between Variables with the Risky Sexual Behavior of Sexually Transmitted Infections**

| Variable                    | Category    | Sexual Behavior |      |                 |      |       |     | POR   | 95%CI       | p-value |
|-----------------------------|-------------|-----------------|------|-----------------|------|-------|-----|-------|-------------|---------|
|                             |             | Risk of STIs    |      | No Risk of STIs |      | Total |     |       |             |         |
|                             |             | n               | %    | n               | %    | n     | %   |       |             |         |
| Attitude                    | Agree       | 358             | 10.8 | 2,804           | 89.2 | 3,142 | 100 | 1.127 | 0.940-1.352 | 0.016   |
|                             | Disagree    | 716             | 9.7  | 6,690           | 90.3 | 7,405 | 100 |       |             |         |
| Age                         | 15-19 years | 641             | 10.0 | 5,788           | 90.0 | 6,429 | 100 | 0.996 | 0.843-1.178 | 0.969   |
|                             | 20-24 years | 412             | 10.0 | 4,118           | 90.0 | 4,118 | 100 |       |             |         |
| Education                   | Low         | 267             | 9.9  | 2,420           | 90.1 | 2,687 | 100 | 1.991 | 1.823-2.195 | 0.927   |
|                             | High        | 787             | 10.0 | 7,073           | 90.0 | 7,860 | 100 |       |             |         |
| Residence                   | Urban       | 635             | 10.3 | 5,531           | 89.7 | 6,165 | 100 | 1.078 | 0.910-1.277 | 0.038   |
|                             | Rural       | 420             | 9.6  | 3,962           | 90.4 | 4,382 | 100 |       |             |         |
| Knowledge                   | Less        | 615             | 11.1 | 5,965           | 88.9 | 6,578 | 100 | 1.826 | 1.704-2.986 | 0.018   |
|                             | Good        | 440             | 9.3  | 3,529           | 90.7 | 3,969 | 100 |       |             |         |
| Access to information media | Less        | 982             | 10.0 | 8,809           | 90.0 | 9,792 | 100 | 1.176 | 0.799-1.450 | 0.028   |
|                             | Good        | 71              | 9.1  | 684             | 90.9 | 755   | 100 |       |             |         |
| Use of substance            | Yes         | 724             | 10.2 | 6,395           | 89.8 | 7,119 | 100 | 1.167 | 0.887-1.382 | 0.038   |
|                             | No          | 329             | 9.6  | 3,098           | 90.4 | 3,428 | 100 |       |             |         |
| Peer influence              | Take effect | 658             | 10.4 | 5,645           | 89.6 | 6,305 | 100 | 1.135 | 0.952-1.349 | 0.038   |
|                             | No effect   | 395             | 9.3  | 3,849           | 90.7 | 4,244 | 100 |       |             |         |

Notes: POR = Prevalence Odds Ratio; CI = Confidence Interval; STIs = Sexually Transmitted Infections

**Table 3. Interaction Assessment Results**

| Variable                                       | p-value | Information |
|--|---------|-------------|
| Early models + attitude * age                  | 0.981   | NI          |
| Early models + attitude * residence            | 0.755   | NI          |
| Early models + attitude * education            | 0.136   | NI          |
| Early models + attitude * knowledge            | 0.825   | NI          |
| Early models + attitude * media access         | 0.485   | NI          |
| Early models + attitude * use of the substance | 0.112   | NI          |
| Early models + attitude * peer influence       | 0.080   | NI          |

Note: NI = Not Interaction

**Table 4. Full Model**

| Variable                    | p-value | POR   | 95% CI      |
|-----------------------------|---------|-------|-------------|
| Attitude                    | 0.018   | 1.135 | 0.944-1.364 |
| Age                         | 0.666   | 1.038 | 0.875-1.232 |
| Residence                   | 0.021   | 1.058 | 0.890-1.258 |
| Education                   | 0.669   | 2.043 | 1.860-1.266 |
| Knowledge                   | 0.016   | 1.819 | 1.696-1.963 |
| Access to information media | 0.037   | 1.146 | 0.847-1.550 |
| Use of substance            | 0.048   | 1.068 | 0.890-1.281 |
| Peer influence              | 0.048   | 1.122 | 0.943-1.334 |

Note: POR = Prevalence Odds Ratio; CI = Confidence Interval

**Table 5. Confounding Assessment Results**

| Variables Excluded from the Model      | POR Before | POR After | ΔPOR (%) | Information |
|--|------------|-----------|----------|-------------|
| Education (p-value = 0.669)            | 1.135      | 1.138     | 0.26     | NC          |
| Age (p-value = 0.666)                  | 1.135      | 1.136     | 0.08     | NC          |
| Peer influence (p-value = 0.048)       | 1.135      | 1.136     | 0.08     | NC          |
| Use of the substance (p-value = 0.048) | 1.135      | 1.128     | 0.62     | NC          |
| Access to media (p-value = 0.037)      | 1.135      | 1.127     | 0.70     | NC          |
| Residence (p-value = 0.021)            | 1.135      | 1.125     | 0.88     | NC          |
| Knowledge (p-value = 0.016)            | 1.135      | 1.127     | 0.70     | NC          |

Notes: POR = Prevalence Odds Ratio; NC = Not Confounding

**Table 6. Final Model**

| Variable | p-value | POR   | 95%CI       |
|----------|---------|-------|-------------|
| Attitude | 0.018   | 1.135 | 0.944-1.364 |

Note: POR = Prevalence Odds Ratio; CI = Confidence Interval;

after the covariates were removed from the model. Further analysis was carried out to obtain the full model value, where the POR results from the full model would be used as a reference in the confounding test assessment (Table 5). Based on the changes in POR value (ΔPOR), there were no variables that had a change in POR > 10%, which means that statistically, all covariate variables were not confounding. The confounding assessment was completed in order to obtain the final model of complex sample logistic regression analysis in Table 6.

Based on the whole process of multivariate analysis regarding the relationship between attitudes, sexual behavior, and the risk of STIs in male adolescents, the result showed insignificance between exposure and outcome, was possible due to the limited sample size. However, in epidemiology, male adolescents with an agreeable attitude towards sexual behavior have a 1.135 times risk of engaging in risky sexual behavior for STIs compared to those that disagree.

### Discussion

In the 2017 IDHS study, the prevalence of male adolescents having risky sexual behavior was 8%, while those that had risky sexual behaviors for STIs in the 2012 IDHS data were 4.5%. Furthermore, this situation has increased almost two times from the previous data. Risky sexual behavior of STIs in this case, was male adolescents who engaged in premarital sex.<sup>13</sup> It was different from the case size and the IDHS study in 2017 involving male adolescents with risky STIs. The number of cases of male adolescents that engaged in premarital sex was 10%. This difference was presumably because there were many missing data from some of the variables resulting in the different results between the IDHS data and this study. The prevalence of risky STIs among male adolescents has increased due to social changes, which include increased

peer influence and adolescents having sexual thoughts. Besides, there were changes, especially in current technology, that makes it easier for them to access negative sites that could lead to premarital sex.<sup>24</sup>

The variables that were proven to be related in the bivariate analysis with risky sexual behavior for STIs were residence, knowledge, access to information media, substance use, and peer influence. Meanwhile, age and education did not have a significant relationship with sexual risk behaviors for STIs. This occurred because the two groups of respondents were not representative. However, this was different from several studies which stated that there was a relationship between age and the level of education with risky sexual behaviors for STIs.<sup>16,17,25-27</sup>

Attitudes toward sexual behavior in several studies reported that it was a factor that influences the behavior of various individuals.<sup>28,29</sup> Based on the results of the bivariate analysis, there was a statistical relationship between attitudes, sexual behavior, and STIs. The result showed that male adolescents with an agreeable attitude had 1.127 times the risk of contacting risky STIs compared to those with a disagreeing attitude (p-value = 0.016, 95%CI = 0.940-1.352). The results of this study is in line with that of Yip, *et al.*,<sup>11</sup> in Hong Kong, which reported that adolescents' consent attitude was 6.7 times (95%CI = 4.10-10.96) engaging in risky sexual behaviors. Another study by Mohammadi, *et al.*,<sup>30</sup> on male adolescents in Tehran, Iran, showed that negative attitudes towards sexuality were 1.97 times (95%CI = 1.28-3.04) affected risky sexual behavior.

There were no interacting or confounding variables in the multivariate analysis between attitudes towards sexual behavior and STIs. Therefore, in the final modeling, only attitudes that influenced risky sexual behavior of STIs were found (p-value 0.018, POR = 1.135 (95%CI = 0.944-1.364)). Attitude is a behavioral mediator, meaning that everything whether knowledge, media access, use of alcohol/smoking/drugs, and others influences an individual's behavior. According to Azwar S,<sup>31</sup> when people are aware of a particular situation. It influences their behavior towards it and is mediated by an attitude. This means that no matter how much knowledge one has,

when a positive attitude does not support it, the effect on the behavior would be insufficient.

Although no interactions and confounders were found in this study, other studies reported that in addition to attitudes there are factors that influence risky sexual behaviors for STIs, including substance use such as alcohol/drugs.<sup>32,33</sup> The perception that using substances, in this case, alcohol to narcotics, has a disinhibiting effect (behavior that is not following with prevailing social norms due to disruption or loss of self-control function) on an individual's decision to engage in risky sexual behavior.

Adolescents usually make decisions that are more influenced by emotions than reason. Therefore, substance use could increase the likelihood of engaging in risky sexual behaviors.<sup>34</sup> A study has shown that peer group influence has an effect on the sexual behaviors of adolescents.<sup>15</sup> Male adolescents would encourage their peer group to be sexually active even though they are not ready or interested. They are only challenged with courage and mostly do not know about safe sex.<sup>35</sup>

### Conclusion and Recommendation

It can be concluded that male adolescents who had an agreeable attitude towards sexual behavior could improve the risk of having risky sexual behavior of STIs 1,135 times; however, the attitude variable was not necessarily a major risk factor for the risky sexual behavior of STIs. Knowledge and education were not related to the risky sexual behavior of STIs.

The agencies and policymakers need to add questionnaires relating to the exposure to pornography and create a parent education program that involves parents and their male teenagers in forming positive attitudes.

### Abbreviations

STIs: Sexually Transmitted Infections; HIV/AIDS: (Human Immunodeficiency Virus/Acquired Immunodeficiency Syndrome); GDB: Global Burden of Disease; IHME: Institute for Health Metrics and Evaluation; IBBS: Integrated Biological and Behavioral Surveillance; POR: Prevalence Odds Ratio; CI: Confidence Interval; NI: Not Interaction; NC: Not Confounding.

### Ethics Approval and Consent to Participate

Ethics approval was obtained by the Ethics Committee of the Faculty of Public Health Universitas Indonesia (Ethical Approval: 233/UN2.F10.D11/PPM.00.02/2020).

### Competing Interest

The author declares that there is no significant competing financial, professional, or personal interest that might have affected the performance or presentation of the work described in this manuscript.

### Availability of Data and Materials

The original data was made public in <https://dhsprogram.com/>

### Authors' Contribution

H and NM conceptualized this study, H created the methodology and joined NM in editing, reviewing, and writing the manuscript. In addition, they wrote the original draft.

### Acknowledgment

The authors are grateful to the ICF International and IDHS for providing the data set used to undertake this study, and Universitas Indonesia for funding this study through PUTI Grant with contract number NKB-5/UN2.RST/HKP.05.00/2020).

### References

1. World Health Organization. Top 10 causes of death; 2018.
2. Institute of Health Metrics and Evaluations. Findings from the global burden of disease study 2017. Seattle, WA: IHME. 2018.
3. World Health Organization. Sexually transmitted infections: implementing the global STI strategy. World Health Organization. 2017; 10 (12): 1–8.
4. World Health Organization Department of Reproductive Health and Research. Report on global sexually transmitted infection surveillance, 2018. Geneva: World Health Organization. 2018. p. 6-7.
5. Newman L, Rowley J, Vander Hoorn S, Wijesooriya NS, Unemo M, Low N, et al. Global estimates of the prevalence and incidence of four curable sexually transmitted infections in 2012 based on systematic review and global reporting. PLoS One. 2015; 10 (12): e0143504.
6. Joint United Nations Programme on HIV and AIDS. UNAIDS data 2019. UNAIDS; 2019.
7. Kementerian Kesehatan Republik Indonesia. Laporan STBP 2015; 2015.
8. Kugler KC, Vasilenko SA, Butera NM, Coffman DL. Long-term consequences of early sexual initiation on young adult health. J Early Adolesc. 2017; 37 (5): 662–76.
9. Savolainen J, Mason WA, Hughes LA, Ebeling H, Hurtig TM, Taanila AM. Pubertal development and sexual intercourse among adolescent girls. Youth Soc. 2015; 47 (4): 520–38.
10. Darmasih R. Faktor yang mempengaruhi perilaku seks pranikah pada remaja SMA di Surakarta. Universitas Muhammadiyah Surakarta; 2019.
11. Yip PS, Zhang H, Lam TH, Lam KF, Lee AM, Chan J, et al. Sex knowledge, attitudes, and high-risk sexual behaviors among unmarried youth in Hong Kong. BMC Public Health. 2013; 13: 691.
12. Sah RB, Ghimire A, Parajuli P. Knowledge and attitude on sexual behaviour among school adolescents. Health Renaissance. 2012; 10 (5): 224–8.
13. Badan Kependudukan dan Keluarga Berencana Nasional. 2017 Survei demografi dan kesehatan Indonesia. SDKI; 2017.
14. Maryatun, Purwaningsih W. Hubungan pengetahuan dan peran keluarga dengan perilaku seks pranikah pada remaja anak jalanan di Kota Surakarta. Gaster. 2012; 9 (1): 22–9.
15. Potard C, Courtois R, Rusch E. The influence of peers on risky sexual behaviour during adolescence. European Journal of Contraception and

- Reproductive Health Care. 2008; 15 (3): 264–70.
16. Thatio R, Jenkins RA, Dusitsin N. Effects of the culturally-sensitive comprehensive sex education programme among Thai secondary school students. *Journal of Advanced Nursing*. 2008; 62 (4): 457–69.
  17. Haque MR, Soonthorndhada A. Risk perception and condom-use among thai youths: Findings from Kanchanaburi demographic surveillance system site in Thailand. *Journal of Health, Population and Nutrition*. 2009; 27 (6): 772–83.
  18. Widman L, Choukas-Bradley S, Helms SW, Prinstein MJ. Adolescent susceptibility to peer influence in sexual situations. *Journal of Adolescent Health*. 2016; 58 (3): 323–9.
  19. Joint United Nations Programme on HIV/AIDS. UNAIDS report on the global AIDS epidemic, 2010. UNAIDS. 2010. p. 1-112.
  20. Hindin JM, Fatusi AO. Adolescent sexual and reproductive health in developing countries: an overview of trends and interventions. *International Perspectives on Sexual and Reproductive Health*. 2009; 32 (2): 58–62.
  21. Upreti D, Regmi P, Pant P, Simkhada P. Young people's knowledge, attitude, and behaviour on STI/HIV/AIDS in the context of Nepal: a systematic review. *Kathmandu University Medical Journal*. 2009; 7 (28): 383–91.
  22. Fentahun N, Mamo A. Risky sexual behaviors and associated factors among male and female students in Jimma zone preparatory schools, South West Ethiopia: comparative study. *Ethiop J Health Sci*. 2014; 24 (1): 59–68.
  23. Tura G, Alemseged F, Dejene S. Risky sexual behavior and predisposing factors among students of Jimma University, Ethiopia. *Ethiopian Journal of Health Services*. 2012; 22 (3): 170–80.
  24. Arma AJA. Pengaruh perubahan sosial terhadap perilaku seks remaja dan pengetahuan kespro sebagai alternatif penangkalnya. Universitas Sumatera Utara. 2015. p.189-97.
  25. Berhan Y, Berhan A. A meta-analysis of risky sexual behaviour among male youth in developing countries. *AIDS Research and Treatment*. 2015; 2015.
  26. Agajie M. Risky sexual behavior and associated factors among high school youth in Pawe Woreda Benishangul Gumuz Region. *Science Journal of Clinical Medicine*. 2015; 4 (4): 67-75.
  27. Amare H, Azage M, Negash M, Getachew A, Desale A, Abebe N. Risky sexual behavior and associated factors among adolescent students in Tana Haik High School, Bahir Dar, Northern Ethiopia. *International Journal of HIV/AIDS Prevention, Education and Behavioural Science*. 2017; 3 (4): 41–7.
  28. Montes KS, Blanco L, LaBrie JW. The relationship between perceived hookup attitudes and negative hookup consequences: do perceived attitudes of close friends matter?. *Journal of Sex Research*. 2017; 54 (9): 1128–40.
  29. Rahmah, R, Wahyudina AAN, Sari WW. Attitude and behavior sexual among adolescents in Yogyakarta. *Indonesian Journal of Nursing Practices*. 2017; 1 (2): 64–8.
  30. Mohammadi MR, Mohammad K, Farahani FKA, Alikhani S, Zare M, Tehrani FR, et al. Reproductive knowledge, attitudes and behavior among adolescent males in Tehran, Iran. *International Family Planning Perspectives*. 2006; 32 (1): 35–44.
  31. Azwar S. Sikap manusia: teori dan pengukurannya. Edisi ke-2. Yogyakarta: Pustaka Pelajar; 2011.
  32. Browne DC, Clubb PA, Wang Y, Wagner F. Drug use and high-risk sexual behaviors among African American men who have sex with men and men who have sex with women. *American Journal of Public Health*. 2009; 99 (6): 1062–6.
  33. Lee GY, Choi YJ. Analysis of Korean adolescents' sexual experience and substance use. *Social Behavior and Personality*. 2017; 45 (5): 809–18.
  34. Ritchwood TD, Ford H, DeCoster J, Sutton M, Lochman JE. Risky sexual behavior and substance use among adolescents: a meta-analysis. *Children and Youth Services Review*. 2015; 52: 74–88.
  35. Peçi B. Peer influence and adolescent sexual behavior trajectories: links to sexual initiation. *European Journal of Multidisciplinary Studies*. 2017; 2 (3): 96.