IABJ. Volume 5 No 1. June 2024
Available online at https://e-journal.unair.ac.id/iabj

e-ISSN: 2746-4474
DOI=10.20473/iabj.v5i1.52005

INDONESIAN ANDROLOGY AND BIOMEDICAL JOURNAL

Original Research

Association Between HIV/AIDS Knowledge and Sexual Activity Behavior Among Indonesian Couples Aged 20 to 40: A Cross-Sectional Study

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OPEN ACCESS

ARTICLE INFO

Received: November 28, 2023
Accepted: June 03, 2024
Published: June 27, 2024

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Keywords:
Couples' Sexual Activity
HIV/AIDS Knowledge
Sexually Transmitted Diseases
Cross-Sectional Study

Abstract

In Indonesia, the escalating prevalence of STDs and HIV/AIDS poses a significant health challenge. The transmission of HIV occurs through various modes, including unsafe sexual behaviors and mother-to-baby transmission. Insufficient knowledge regarding STDs and sexual education contributes to the rise of HIV/AIDS cases. To investigate the relationship between knowledge of HIV/AIDS and sexual activity behavior among couples aged 20 to 40 in Indonesia. A cross-sectional study involving 384 Indonesian couples was conducted using a causal associative technique. Purposive sampling was employed to select participants aged 20 to 40, familiar with STDs, engaged in various relationship statuses (dating, married, or in a relationship without formal status), and willing to complete the questionnaire. The variables used to quantify respondents' knowledge levels included understanding of HIV/AIDS, HIV/AIDS transmission, and HIV/AIDS prevention and treatment. The variable measuring couples' sexual activity pertained to their involvement in HIV/AIDS preventive activities. Analysis of the data revealed that 282 respondents (73.4%) demonstrated good knowledge, 73 respondents (19%) exhibited moderate knowledge, and 29 respondents (7.6%) displayed poor knowledge regarding HIV/AIDS. Among the participants, 202 respondents (52.6%) expressed support for safe sex, indicating engagement in HIV/AIDS preventive activities, while 182 others (47.4%) did not. T-test results for the variables of HIV/AIDS understanding, transmission, prevention, and treatment yielded values of 0.259 (>0.05), 0.259 (>0.05), 0.264 (>0.05), and 0.522 (>0.05) for the F-test. The study concludes that couples' knowledge of HIV/AIDS does not exert a significant influence on their sexual activity behavior. Therefore, health workers must be more proactive in educating communities about HIV/AIDS. Initial education and its impact on HIV/AIDS prevention can further be explored in future studies.

Cite this as: Burhan NB, Wardanna JR, Putri ADJJ, Irnandi DF. Association Between HIV/AIDS Knowledge and Sexual Activity Behavior Among Indonesian Couples Aged 20 to 40: A Cross-Sectional Study. Indonesian Andrology and Biomedical Journal. 2024 June 30;5(1):26-33. DOI: https://doi.org/10.20473/iabj.v5i1.52005.

1. Introduction

The Human Immunodeficiency Virus (HIV), including its prevalence in Indonesia, remains a globally prominent subject of discussion in the medical community. As of 2018, the recorded number of individuals living with HIV in Indonesia reached 640 thousand. Notably, the distribution of HIV across age groups is predominant in the 20-24 years and 25-49 years categories. A 2017 Indonesia Demographic Health Survey, conducted by the National Population and Family Planning Board, Statistics Indonesia, and the Ministry of Health, revealed that only 15.5% of the surveyed 49,250 households possessed adequate knowledge about HIV. This statistic underscores the persistently low level of HIV awareness in Indonesia. Further analysis from the Indonesian Ministry of Health identifies serodiscordant couples, sex worker customers, and the homosexual male population as the groups with the highest susceptibility to HIV infection[1,2].

HIV/AIDS is categorized as a Sexually Transmitted Disease (STD), with the Centers for Disease Control and Prevention (CDC) reporting approximately 20 million new STD cases annually, primarily affecting adolescents and young adults (15-24 years old). The transmission of STDs can occur through anal or vaginal routes. Of particular concern is the unsafe sexual behavior observed among adolescents, as underscored by alarming global statistics, including the occurrence of 16 million births annually among 18-year-old girls, 3.2 million teenagers experiencing unsafe abortions, and 62.7% of Indonesian adolescents engaging in extramarital sexual activity in 2013. HIV cases in 2013 numbered 10,203, with 30% originating from the adolescent demographic[3–5].

Previous research has predominantly explored the link between HIV/AIDS knowledge and premarital sexual behavior among students and adolescents, with a focus on those up to 24 years old. Noteworthy findings from studies on adolescents aged 15-24 indicate a significant correlation between HIV/AIDS knowledge and the initiation of sexual activity. Contrary, a study in Kendari shows that adolescent sexual behavior is not influenced by the level of reproductive health knowledge. It is mostly influenced by the environment, habits, and non-credible sources of health information. Consequently, this study aims to investigate the relationship between HIV/AIDS knowledge and the sexual activity of couples[6,7].

Considering the data, there is a crucial need for active collaboration between the Indonesian populace and healthcare professionals. Efforts should be intensified in STD education, including voluntary counseling and testing (VCT) programs, to enhance public awareness of STDs. Promoting the significance of safe sex practices is imperative for mitigating the risk of contracting STDs. Moreover, fostering an environment of openness and honesty towards healthcare providers, and destigmatizing discussions about sexual health, can contribute significantly to the reduction of HIV/AIDS cases[8,9].

2. Method

This study employed a causal associative research design with a cross-sectional approach. The research sample was determined through purposive sampling, incorporating specific criteria: (1) individuals aged 20-40 years, (2) possessing prior knowledge of sexually transmitted diseases (STDs), (3) being in a relationship status (dating, married, or in a relationship without formal status), and (4) expressing willingness to complete the questionnaire. The sample size was calculated using the multi-precision proportion estimation formula with an absolute tolerable degree of 5%, resulting in a total of 384 samples.

The dependent variable in this study is the sexual activity of couples aged 20-40 years, while the independent variable is HIV/AIDS knowledge. The latter is assessed through indicators encompassing understanding of HIV/AIDS, modes of HIV/AIDS transmission, and prevention and treatment strategies. The research was conducted both online, utilizing a questionnaire distributed via Google Forms, and offline at Dr. Saiful Anwar Malang Regional General Hospital under the ethical review certificate Number: 400/081/K.3/302/2021.

The research instrument comprised a questionnaire, incorporating questions related to HIV/AIDS knowledge that were adapted from previous studies conducted in 2013 in Semarang and 2018 in Bantul. Specifically, seven questions addressed understanding of HIV/AIDS, nineteen questions focused on modes of HIV/AIDS transmission, and nine questions examined HIV/AIDS prevention and treatment. Additionally, questions about couples' sexual activity were adapted from a 2018 study in Sleman, totaling eleven questions. Data analysis in this research involved both univariate and bivariate analysis methods[10–12].

3. Result

Univariate Analysis

Initially, 436 respondents participated in the questionnaire distribution, of which 384 met the specified criteria, while 52 did not. The distribution of respondent profiles is presented in the subsequent table.

Table 1. Profile Distribution of Research Respondents

Characteristics	Descriptions	Frequency (n=384)	Percentage
Respondent's Age	20-26 years	238	62%
	27-33 years	84	21.9%
	34-40 years	62	16.1%
Age of Respondent's Partner	20-26 years	239	62.2%
	27-33 years	84	21.9%
	34-30 years	61	15.9%
Sex	Man	173	45.1%
	Woman	211	54.9%
Relationship Status	Statusless relationship	174	45.3%
	Dating	56	14.6%
	Married	154	40.1%
Latest Education	Diploma/Bachelor's Degree	120	31.2%
	Master's Degree	5	1.3%
	Elementary School	1	0.3%
	Junior High School	25	6.5%
	Senior High School	233	60.7%
Domicile	Bali	3	0.8%
	Bangka Belitung	1	0.3%
	Banten	1	0.3%
	Jakarta	19	4.9%
	East Java	285	74.2%
	Central Java	17	4.4%
	West Java	36	9.4%
	South Kalimantan	2	0.5%
	East Kalimantan	3	0.8%
	Kepulauan Riau	1	0.3%
	East Nusa Tenggara	1	0.3%
	South Sulawesi	1	0.3%
	South Sumatera	3	0.8%
	Yogyakarta	11	2.9%
Media to get information (Respondent may choose >1 answer)	Printed Media	211/384	49.1%
	Electronic Media	299/384	69.5%
	Directly from Health Workers	325/384	75.5%
	Others	14/384	2.8%

Validity and Reliability Test

The results indicated that all questions related to the HIV/AIDS understanding variable were valid. However, two questions (questions 1 and 10) about the HIV/AIDS transmission method variable were deemed invalid, while all questions concerning the HIV/AIDS prevention and treatment variable were valid. Furthermore, one statement (statement 4) within the couples' sexual activity variable was identified as invalid.

The reliability test, using Cronbach's Alpha, demonstrated values of 0.364 (>0.084) for the HIV/AIDS understanding variable, 0.866 (>0.084) for the HIV/AIDS transmission method variable, 0.274 (>0.084) for HIV/AIDS prevention and treatment, and 0.597 (>0.084) for couples' sexual activity. Thus, it was concluded that the questionnaire exhibited reliability.

Normality Test

The normality test, conducted using Minitab software, examined the distribution of Likert and Guttman scale data by assessing residuals from regression results. The Kolmogorov-Smirnov value was 0.065, with a p-value of 0.01 (<0.05), indicating that the questionnaire data deviated from normal distribution.

Bivariate Analysis

Bivariate analysis comprised variable tests and correlation tests, employing the T-test, F-test, and Spearman rank correlation test.

a. Spearman Rank Correlation Test

The correlation coefficients between variables were examined, revealing the following:

1. The correlation between HIV/AIDS understanding and couples' sexual activity had a coefficient of 0.074, with a significance value of 0.148 (>0.05), indicating a less significant relationship.
2. The correlation between HIV/AIDS transmission method and couples' sexual activity had a coefficient of 0.055, with a significance value of 0.282 (>0.05), suggesting an insignificant relationship.
3. The correlation between HIV/AIDS prevention and treatment and couples' sexual activity showed a coefficient of 0.074, with a significance value of 0.147 (>0.05), indicating a lack of meaningful relationship.

b. T-test and F-test

The T-test and F-test were applied to test the research hypotheses:

1. The understanding of HIV/AIDS did not significantly affect couples' sexual activity, with a significance value of 0.259 (>0.05).
2. The transmission method of HIV/AIDS did not significantly impact couples' sexual activity, with a significance value of 0.735 (>0.05).
3. HIV/AIDS prevention and treatment did not significantly influence couples' sexual activity, with a significance value of 0.264 (>0.05).
4. The F-test demonstrated a significance value of 0.522 (>0.05), indicating that HIV/AIDS knowledge did not collectively affect couples' sexual activity.

Level of Knowledge

Respondents' knowledge levels were categorized based on the percentage of correct answers. A good level of knowledge was defined as >75%, moderate knowledge as 60-75%, and poor knowledge as <60%. Analysis results indicated that 282 respondents (73.4%) possessed a good level of knowledge, 73 respondents (19%) had a moderate level, and 29 respondents (7.6%) demonstrated poor knowledge. Age-wise, the 20-26 years group exhibited the highest level of good knowledge (91.6%), followed by the 27-33 years group (48.8%), and the 34-40 years group (33.9%). Regarding educational background, individuals with a master's degree all demonstrated good knowledge, while those with only an elementary school education had a low knowledge level.

Couples' Sexual Activity

This variable assessed couples' attitudes and behaviors in the context of HIV/AIDS prevention. Respondents with scores ≥ Median T were deemed to have positive sexual behavior supporting HIV/AIDS prevention, and vice versa. Analysis revealed that 202 respondents (52.6%) exhibited behavior conducive to HIV/AIDS prevention, while 182 respondents (47.4%) did not support HIV/AIDS prevention.

4. Discussion

Factors Influencing HIV/AIDS Knowledge

Analyzing the data from 384 respondents, it is evident that three factors play a role in shaping respondents' knowledge levels: age, education level, and information sources. Previous research affirms the impact of age on knowledge. indicating that older individuals tend to possess more knowledge, possibly due to the maturation of thinking processes over time. However, data from the Indonesian Ministry of Health in the third quarter of 2020 reveal a concerning trend, with 69% of HIV/AIDS infections occurring in the 25-49 age group, emphasizing the importance of targeted interventions in this demographic[13].

From a medical perspective, the completion of frontal lobe development by age 20 signifies the peak brain age, after which there is a decline in development. This decline, commencing around the age of 30, is characterized by slowed growth of nerve cells and brain cells, leading to difficulties in synaptic breakdown and new learning. Consistent with this, respondents aged >26 years predominantly exhibited moderate and low levels of knowledge[14].

Education emerges as another influential factor, aligning with previous research demonstrating a direct correlation between education level and knowledge. Higher education levels correlated with a greater ability to answer questions correctly, providing evidence of education's impact on

information assimilation[13]. In Indonesia, the level of HIV/AIDS knowledge is unequally distributed. Research showed that Java has the highest level of HIV/AIDS knowledge. The rate of HIV/AIDS knowledge in Java is 12.5% higher than in Sumatra, Kalimantan, Sulawesi, Papua, and Maluku. Java is supported by more developed infrastructure facilities than others. Office centers are located in Java resulting in a more highly developed economy than other islands. In addition, national referral hospitals and top universities are mostly located in Java, making it easier for the population to access information. The government should work harder to provide HIV/AIDS education more broadly with a variety of health promotion instruments[15].

Relationship between Understanding, Ways of Transmission and Infection, and Prevention of HIV/AIDS on Couples' Sexual Activity

Statistical tests reveal that an increase in knowledge about HIV/AIDS does not necessarily translate into sexual behavior supportive of HIV/AIDS prevention. Despite 60.7% of respondents being high school graduates with presumably adequate education on HIV/AIDS, a considerable portion failed to apply their knowledge in daily life. Descriptive analysis, based on the six levels of knowledge, indicates that respondents reached the level of understanding but demonstrated reluctance to apply their knowledge. This behavior may be influenced by various factors, with the surrounding environment exerting significant pressure[7,16].

The reciprocal relationship between behavior and the environment, consistent with contemporary cognitive theory, underscores the importance of the environment in shaping behavior. Cognitive theory emphasizes how humans process information from the environment, make decisions, and weigh the potential benefits and harms (social exchange theory)[17]. Environmental factors, such as an unsupportive environment, lack of awareness about STDs and safe sex, and insufficient VCT education, contribute to negative behaviors. Consequently, the study concludes that possessing knowledge of HIV/AIDS does not guarantee the adoption of sexual behaviors that support prevention efforts[6,16,18,19,20].

Research in China showed that young students who lack understanding of HIV/AIDS lead to unsafe sex and premarital sex. This is evidenced by the percentage of condom use in students who are aware of HIV/AIDS is higher than those who are not aware[21]. Indonesian people's awareness of how important to use condoms is still low. Head of the National Population and Family Planning Agency (BKKBN) Hasto Wardoyo said the rate of condom and vasectomy use in Indonesia is less than 5%. Data shows that as of 2021, only 3.37% of people in Indonesia used condoms and 0.4% had vasectomy[22].

Lack of safe sex behavior awareness is confirmed by employees with HIV/AIDS in Semarang. After being infected with HIV/AIDS, their understanding of HIV/AIDS improved. However, it is not practiced optimally[23]. As the second most HIV/AIDS-affected country in ASEAN, Indonesia must work harder to promote the importance of safe sex. In 1989, the 100% Condom Use Program (CUP) was launched with the main target of female sex workers in Thailand, Cambodia, Philippines, Vietnam, Myanmar, and Thailand. Indonesia is expected to follow Thailand's success in increasing the awareness of condoms after implementing CUP[24]. It requires collaboration among many parties, especially the government, to regulate the use of condoms in Indonesia.

Relationship between HIV/AIDS Information Sources and Couples' Sexual Activity

The study finds that direct education (face-to-face interactions with health workers) and electronic media are the primary sources of information for respondents regarding HIV/AIDS. Prior research has established that information significantly influences an individual's knowledge. Regular exposure to information through hearing, reading, or seeing contributes to enhanced knowledge and insight[25].

While the study did not conduct a statistical test on the information source variable, it highlights the pivotal role of health education in shaping attitudes toward HIV/AIDS prevention. Health education interventions, encompassing direct socialization, peer groups, and informative brochures, have proven effective in increasing knowledge. The success of health education is contingent on factors such as openness with health workers. However, prevailing cultural norms, where discussions about topics like sex are considered taboo and disgraceful, hinder the effectiveness of health education efforts. Additionally, the prevalence of misinformation, exacerbated by a lack of crosschecking and mistrust in health workers, poses challenges to improving knowledge and attitudes regarding HIV/AIDS prevention in the Indonesian context[26,27].

Digitalization makes people easier to get information. Information about sex may be easily found online today. Research on adolescents in Spain showed that 68.4% of 3809 students aged 12-

17 years got information about sex online[28]. A total of 96 adolescents aged 16-18 years in Klaten Regency mostly accessed social media for 7-12 hours. As many as 90.65% of respondents admitted to getting information about reproduction from the internet[29]. An interesting phenomenon occurred in Hangzhou, Zhejiang Province, China, which shows how terrible the impact of the internet on sexual behavior can be. For the group that did not do online dating, HIV/AIDS knowledge prevented them from unsafe sex behavior. However, for those who do online dating, as their understanding of HIV/AIDS increases, unsafe sex behavior also increases[30]. HIV/AIDS education using the internet should be included as one of the approaches in health promotion by paying more attention to adolescents considering that adolescence is full of curiosity.

5. Conclusion

In summary, this study highlights the complexity of factors influencing HIV/AIDS knowledge and its translation into preventive behaviors among couples aged 20 to 40 in Indonesia. While age and education level significantly impact knowledge acquisition, the study reveals a concerning gap between knowledge and application. Environmental factors play a pivotal role in shaping behavior, emphasizing the need for supportive contexts to bridge this divide.

Despite possessing comprehensive knowledge, individuals may not adopt preventive behaviors, indicating the intricate nature of influencing health practices. Health education, particularly through direct interactions with health workers and electronic media, proves crucial in disseminating information. However, cultural taboos, misinformation, and a lack of trust in health workers present challenges to effective health education strategies.

In conclusion, addressing these gaps requires targeted educational initiatives, creating supportive environments, and fostering open dialogues about sexual health. These multifaceted interventions are essential for mitigating the rising prevalence of HIV/AIDS in Indonesia and promoting a comprehensive approach to public health awareness and prevention.

Author's Contribution

All authors have contributed to the final manuscript. The contribution of each author as follow: collected the data, drafted the manuscript and designed the figures, devised the main conceptual ideas and critical revision of the article. All authors discussed the results and contributed to the final manuscript.

Acknowledgement

The researchers thank RSUD Dr. Saiful Anwar Malang for giving ethical approval to conduct this research and the support for this study.

Conflict of Interest

No potential conflict of interest was reported by the authors.

Funding Disclosure

This study doesn't receive any funding.

Ethics Approval

Ethical clearance for this research was obtained from Dr. Saiful Anwar Malang Regional General Hospital under the ethical review certificate Number: 400/081/K.3/302/2021.

References

1. Kementerian Kesehatan RI. *InfoDATIN: Situasi Umum HIV/AIDS dan Tes HIV*. 2018.
2. National Population and Family Planning Board (BKKBN), Statistics Indonesia (BPS), Ministry of Health (Kemenkes) et al. *Indonesia Demographic and Health Survey 2017*. Jakarta, 2018.
3. Rahmawati D, N Y, CS I. Analisis Faktor-faktor yang Berhubungan dengan Perilaku Seks Pranikah Mahasiswa Kos-kosan di Kelurahan Lalolara Tahun 2016. *J Ilm Mhs Kesehat Masy Unsyiah* 2017; 2: 1–12. [Journal]
4. Agustini N, Arsani N. *Infeksi Menular Seksual dan Kehamilan. In: Seminar Nasional MIPA. Singaraja: Universitas Pendidikan Ganesha*. 2013. [Journal]
5. Windari MM. *Pencegahan Penularan Infeksi Menular Seksual dan Human Immunodeiciency Virus*. Udayana University, 2015.
6. NL P, H B. Analisis Hubungan

Pengetahuan Pencegahan HIV/AIDS dan Perilaku Seks Tidak Aman pada Remaja Usia 15-24 Tahun di Indonesia. *Buletin Penelitian Sistem Kesehatan*, 2011, pp. 192–202. [Journal].
7. Herman S, Amiruddin A, Muhammad Sirih, et al. Level of Knowledge, Attitude About Reproductive Health and Gender with Teenager Sexual Behaviour at SMAN 4 Kendari . *Indones Androl Biomed J* 2023; 4: 15–22. [doi.org/10.20473/iabj.v4i1.44617].
8. Astuti D, Mulyaningsih M. Peran Perawat sebagai Educator Mempengaruhi Kepatuhan Konsumsi Obat Antiretroviral (ARV) bagi Pasien HIV/AIDS di Klinik VCT RSUD Dr. Moewardi. *J Ners dan Kebidanan (Journal Ners Midwifery)* 2016; 3: 183 – 188. [Journal].
9. Lova SM, Besral B, Vivi Triana. Faktor-Faktor Yang Berhubungan Dengan Pemanfaatan Layanan Voluntary Counseling And Testing (VCT) Oleh Kelompok Lelaki Seks Lelaki (LSL) di Kota Padang Tahun 2019. *J Ilm Indones*; 7. Epub ahead of print 2022. DOI: https://doi.org/10.36418/syntax-literate.v7i12.11291. [Journal].
10. Titik Nuraeni, Nuke Devi Indrawati AR. Hubungan Pengetahuan Ibu Hamil tentang HIV/AIDS dan VCT dengan Sikap Terhadap Konseling dan Tes HIV/AIDS. *J Kebidanan* 2013; 2: 1–10. [Journal].
11. Mukti GA, Tyastuti S, Hernayanti MR. *Pengaruh Peer Education Terhadap Pengetahuan dan Sikap Remaja Tentang HIV/AIDS di SMAN 1 Kretek Bantul Tahun 2018*. Poltekkes Kemenkes Yogyakarta, 2018.
12. Nugrahawati REPC. *Faktor-Faktor yang Mempengaruhi Perilaku Remaja Terhadap Pencegahan HIV/AIDS di SMA Negeri 2 Sleman Tahun 2018*. Poltekkes Kemenkes Yogyakarta, 2018.
13. Nursalam. *Metodologi Penelitian Ilmu Keperawatan Pendekatan Praktis*. 3rd ed. Jakarta: Salemba Medika, 2013. https://penerbitsalemba.com/
14. Kail R V, Kail R, Cavanaugh JC, et al. *Human Development: A Life-Span View*. 7th ed. Boston, 2015. https://books.google.co.id/books
15. Arifin B, Rokhman MR, Zulkarnain Z, et al. The Knowledge Mapping of HIV/AIDS in Indonesians Living on Six Major Islands Using the Indonesian Version of the HIV-KQ-18 Instrument. *PLoS One* 2023; 18: e0293876. [Pubmed].
16. Notoatmodjo S. *Promosi Kesehatan dan Perilaku Kesehatan*. 2012.
17. Mustafa H. Perilaku Manusia dalam Perspektif Psikologi Sosial. *J Adm Bisnis* 2011; 7: 143–156. [Journal].
18. Irsyad C, Setiyadi N, Wijayanti A. Hubungan antara Pengetahuan dan Sikap dengan Perilaku Pencegahan HIV/AIDS pada Remaja Komunitas Anak Jalanan di Kabupaten Kudus. In: *Prosiding Seminar Nasional Fakultas Ilmu Kesehatan*, pp. 1–12. [Proceeding].
19. Zainab, Rizkiyah, Nurhayani S. Knowledge and Manners of Sex Worker about HIV/AIDS Based on Age and Level of Education in Localization of Pembatuan Landasan Ulin Timur Banjarbaru. *J Kesehatan* 2015; 6: 89–95. [Journal].
20. Juliastika, Grace EC, Korompis, et al. Hubungan Pengetahuan Tentang Hiv/Aids Dengan Sikap Dan Tindakan Penggunaan Kondom Pada Wanita Pekerja Seks di Kota Manado. *J Kesehat Masy Univ Sam Ratulangi* 2012; 15–20. [Journal].
21. Qing L, Wang Y, Yang T, et al. Study on HIV/AIDS Knowledge, Sexual Attitudes, Sexual Behaviors, and Preventive Services Among Young Students in Chongqing, China. *Front public Heal* 2022; 10: 982727. [Pubmed].
22. CNN Indonesia. Ternyata Cowok-Cowok Indonesia Ogah Pakai Kondom, https://www.cnnindonesia.com/ (2022).
23. Fitri Anis Annisa V, Azinar M. Perilaku Seksual Berisiko Tertular dan Menularkan HIV/AIDS (Studi Kasus pada Karyawan Penderita HIV/AIDS di Kota Semarang). *Indones J Public Heal Nutr* 2021; 1: 743–751. [Journal].
24. ASEAN. *Addressing AIDS in ASEAN Region: First Regional Report on HIV & AIDS*. 2011. https://asean.org/
25. Budiman, Agus Riyanto. *Kapita Selekta Kuesioner: Pengetahuan dan Sikap dalam Penelitian Kesehatan*. Jakarta, 2015. https://opac.poltekkestasikmalaya.ac.id
26. Khofiyah N, Islamiah BF. Pengaruh Edukasi Tentang HIV/AIDS Terhadap Sikap Pencegahan HIV/AIDS Pada Remaja. *J Ris Kebidanan Indones* 2018; 2: 16–20. [Journal].
27. Permana RTRW, Sumaryani S. *Pengaruh Pendidikan Kesehatan Melalui Peer Group terhadap Sikap Remaja tentang HIV/AIDS di SMA Negeri 2 Bantul Yogyakarta*. STIKES Aisyiyah, 2015. https://perpusda.bantulkab.go.id

28. González Ortega E, Vicario-Molina I, Martínez Álvarez JL, et al. The Internet as a Source of Sexual Information in a Sample of Spanish Adolescents: Associations with Sexual Behavior. *Sex Res Soc Policy*. Epub ahead of print 23 June 2015. DOI: 10.1007/s13178-015-0196-7. https://link.springer.com
29. Prastika DA, Hasanah IN. Adolescent Sexual Behavior in the Era of the Industrial Revolution 4. *J Kebidanan dan Kesehat Tradis* 2022; 1–10. [Journal].
30. Xu J, Luo Y, Dong H, et al. The Effects of Internet Exposure on Sexual Risk Behavior Among Sexually Experienced Male College Students in China: Cross-sectional Study. *JMIR public Heal Surveill* 2022; 8: e31847. [Pubmed].