The Effectiveness of the Skills for Adolescents with a Healthy Sexuality (SAHS) Program at Reducing the Risk of HIV Transmission among Adolescents

Linlin Lindayani
Sekolah Tinggi Ilmu Keperawatan PPNI Jawa Barat
Email: linlinlindayani@gmail.com

ABSTRACT

Introduction: The number of new Human Immunodeficiency Virus (HIV) cases is increasing significantly in Indonesia compared to other countries in the South East Asia region. Unsafe sexual behaviors have become one of the critical risk factors of HIV transmission. Adolescents are one of the high-risk groups with risky sexual behavior, and they also commonly inject drugs. However, only a few studies have been conducted to find out what the best effective interventions are to reduce the risk of HIV transmission among adolescents in Indonesia. The purpose of this study was to determine the effectiveness of the SASH program (skills for adolescents with a healthy sexuality) in reducing the risk of HIV transmission among adolescents in Bandung. **Methods**: A quasi-experimental study design was conducted at one of the private high schools in Bandung. The sample in this study consisted of thirty students. Every participant completed a Bahasa Version questionnaire consisting of HIV-related knowledge, attitudes and behavior (52 items). The analysis consisted of univariate and bivariate analysis using a paired t-test. **Results:** The majority of the students were female (76.7 %). We found that the SAHS program was both significant and effective at increasing the knowledge, attitude, and behavior related to HIV transmission among adolescents ($p< 0.005$) with the mean difference between the pre- and post-test being 3.2, 2.19, and 1.98, respectively. **Conclusions**: The SASH program is effective at improving the knowledge, attitude, and behavior associated with HIV prevention among adolescents. Future research studies are needed to improve the sustainability of the program, such as the development of integrated peer-educators and the use of technology as a form of delivery and promotion in the media.

Key Words: Adolescents, HIV, Prevention, Sexual Behavior.

INTRODUCTION

Indonesia has the fifth highest prevalence of human immunodeficiency virus (HIV) in the South East Asia region, with a prevalence rate of 0.5% (UNAIDS, 2016). According to the data from the Indonesian Ministry of Health (2016), the number of patients with HIV has increased significantly every year, from 5,846 in 2004 to 291,465 in 2016. New HIV cases have decreased by 3.2% from 2015 to 2016. However, the number of new HIV cases is still high among adolescents (ages ranging from 15-19 years old), and the prevalence rate is 2.9%. West Java is one of the Indonesian provinces experiencing modernization, and has the fourth highest number of patients with HIV after the Jakarta, East Java, and Papua provinces. In West Java, about 5,714 adolescences are infected by HIV and 2,208 of them have been diagnosed with AIDS. Bandung was ranked as having the highest HIV prevalence in West Java (Indonesian Ministry of Health, 2016).

Adolescents are the group in society that are the most vulnerable to the influence of unsafe sexual behavior and narcotics abuse because adolescents have their own unique characteristics. They are emotionally unstable while in the phase of transitioning from an adolescent to an adult, and they are still in the identity development phase (Yusuf, 2015). Sociologically, adolescents are at a high risk of external influences. Due to the process of self-discovery, they are easily swayed and are still uncertain about who their role model should be. They are also easily influenced by people's lifestyle around them. Adolescents tend to take shortcuts and do not think ahead about the consequences of their actions. Not only are they involved in bad behaviors such as skipping

school, smoking, drinking alcohols and unsafe sex, but they may also be involved in mass fights, narcotics abuse, sexual activities outside of wedlock, and more.(DAPUSS) Concerning this, the study conducted by the Linkage of Quality Care for Young Key Population (LOLIPOP) on unsafe sexual behavior among adolescents in Bandung found that 91% between the ages of 15-19 years old had had sexual intercourse before marriage. This is congruent with the data from the Health Department of Bandung City (2011), which reported that 30% of adolescents' visits to the adolescent health service program (PKPR) in the *Puskesmas* (public health care center) was related to pre-marriage sex consultations, unwanted pregnancy, sexually transmitted diseases, and HIV and AIDS.

The method of HIV transmission in Indonesia has changed. In the beginning (1990), HIV was transmitted mostly through the needles (injection) used by drug abusers. Nowadays, HIV is transmitted mainly through unsafe sexual intercourse (Ministry of Health, 2016). Since it was found that HIV is transmitted through sexual activities, HIV prevention has been promoted through the ABC (abstinence, be faithful, and use a condom) slogan. However, there is still no clear protocol on how to implement this principle. Consequently, the risk of HIV transmission has increased, as proven by the fact that new HIV cases transmitted through sexual activities is increasing. The prevention of sexually transmitted HIV in Indonesia has also been focused on the use of condoms. However, this method of prevention is a controversial issue in Indonesia, since it is about the religious belief of the majority of people in the nation, who are Muslim. Therefore, the use of a condom is not considered to be effective and is not generally accepted in society. A study reported that the use of condoms among HIV high-risk populations in Indonesia was only 25.4%, even though condoms are sold freely at convenience stores (Wanda, 2015). Considering this situation, a more effective prevention method is needed to reduce the risk of HIV transmission among adolescents. The prevention method should focus on the ability of the individual to protect themselves from the risk of HIV infection in a way that is acceptable for Indonesian society, particularly to vulnerable groups such as adolescents. The goal of this study was to reduce HIV transmission among adolescents through an approach that is culturally suitable and acceptable in Indonesia as a HIV prevention program.

The purpose of this study was to determine the effectiveness of the SASH program on the knowledge, attitude, and behavior toward HIV prevention among adolescents.

MATERIALS AND METHODS

Study design and sample

This study was a quasi-experimental research with one intervention group (and without a control group), aiming to measure the effectiveness of SAHS as a new approach for HIV prevention among adolescents. The sample in this research were the first, second, and third grade Senior High School students in Bandung. The inclusion criteria was that they were Senior High School students from the first, second, and third grade who were willing to participate in the research and who had no communication

problems. The sampling technique implemented to choose the sample was convenience sampling. The total sample was calculated using G-Power Software Version 3.1.6 with a t-test assumption of $\alpha = 0.05$, and effect size = 0.25 (Cohen, 1992) and a power level = 0.80. The total sample recruited was 30 students.

Intervention

SAHS is a school-based program aiming to develop the students' competence concerning HIV prevention referring to sexual behaviors. This program was developed based on the Social Learning Theory (Bandura, 1977) and the Information-Motivation-Behavioral Skills Model (IBM) (Fisher, 1992). SAHS was also based on the principle of capacity building-empowerment, in which peer educators and community-based partnerships are developed between the school, health education institutions, and the surrounding community as a social control to ensure sustainability. Social Learning Theory is a learning theory that implements mutual interactions of cognitive, behavior, and environmental influences. Meanwhile, IBM is a theory that elaborates that information and motivation are critical in facilitating skill development to reduce sexual risk. Health education was given once a week for seven weeks, with four hours undertaken for each section.

The program consisted of structured content with clear protocols for its implementation. The intervention was comprised of five modules: 1. Information and cognitive restructuring (Health and HIV/AIDS, and correctly knowing about HIV/AIDS); 2. Social skills training (improving communication on sexual activities and health); 3. Problem-solving training (decision making); 4. Maintenance strategies: self-management (making and defending decision) and 5. Covert behavior rehearsal.

Research Instrument

Knowledge of HIV prevention

The instrument was implemented to analyze the students' knowledge on HIV prevention, using the HIV-related knowledge developed by Urgate (2013). The instrument consisted of 17 items: 10 items on HIV transmission and 7 items on the misconceptions on HIV transmission and prevention. The instrument used the Guttmann scale with answer choices of 'yes', 'no' and 'do not know'. Every correct answer scored 1 and every 'do not know,' and incorrect answer scored 0. The total score was put into one of two categories. A total score of more than 16 indicated that there was a sufficient level of knowledge, and a score of less than 15 indicated an insufficient level of knowledge. In the current study, the Cronbach' Alpha was 0.78.

The attitude to HIV prevention

The instrument employed to analyze the students' attitude was their self-perception of sexual behaviors on HIV prevention risk. This instrument consisted of 12 items with a 5-point Likert scale, ranging from strongly agree to strongly disagree. A total score was treated as continuous data, in which a high score indicates a positive attitude toward HIV prevention. In the current study, Cronbach' Alpha was 0.72.

Risky sexual behaviors

The behaviors with a HIV transmission risk were analyzed based on an instrument developed by Urgate (2013). Each participant

was asked about his/her sexual activities for the last 12 months. The questions included the first time having sexual intercourse, their number of sexual partners, the frequency of sexual intercourse, the utilization of condoms, and the level of intimate contact with sex workers. In the current study, Cronbach' Alpha was 0.70.

Research Procedure

Table 1. Outline and Objective of the Curriculum: SAHS Intervention

Week	Title	Components	Objectives
Week 1	Health and HIV/AIDS	– Introducing SAHS – Training to identify the healthy and unhealthy status – Information on how HIV affects the body immune system – Training to identify behaviors and activities with a HIV transmission risk – Information on HIV transmission and its prevention methods – Cognitive restructuring erroneous understanding of HIV	– Learning about the biological, psychological, and social aspects of HIV – Identifying risky behaviors – Learning about the basic preventions for HIV
Week 2	Correctly knowing about HIV/AIDS	– Information on HIV transmission and its prevention methods – Cognitive restructuring to correct any erroneous understandings of HIV	– Differentiating between the primary prevention of HIV, the prevention of other sexually transmitted diseases (STDs), and the prevention of unwanted pregnancy – Building critical thinking skills on HIV transmission risks
Week 3	Decision making	– Introducing problem-solving methods and applying them to attitudes about sexual activities – Training on decision making pertaining to HIV prevention methods – Training on decision making pertaining to risky sexual behaviors through situation analysis	– Learning the techniques of problem-solving implementation in situations with a high risk of HIV transmission – Learning how to analyze the short and long terms effects to make informed
Week 4	Improving communication on sexual activities and health	– Introducing aggressive, assertive, and passive communication styles – Training on negotiations with a partner on sexual safety – Training on refusal and defensive techniques to prevent risky behaviors – Training on improving the skills related to HIV prevention	– Obtaining skills to improve security and safety in sexual activities with a partner – Learning how to defend one's self or refuse risky activities – Obtaining skills on how to deal with obstacles in HIV prevention

Week 5	Making and defending the decision	– Training to prevent sexually transmitted HIV – Training on self-instruction – Training on convert behavior rehearsal	– Learning the appropriate methods to prevent HIV – Obtaining skills in relation to self-control
Week 6	Covert behavior rehearsal	Training on covert behavior rehearsal	– Learning how to develop covert behavior

Ethical clearance was obtained from West Java STIKEP PPNI as the research institution; No:1/556.1/STIKep/PPNI/JBR/VII/2017. After getting permission from the private school, the researcher selected a sample group and requested their informed consent. Then, the pre-test was administered through a questionnaire asking about the students' knowledge, the attitude toward HIV prevention, and sexual behavior. The researcher implemented the SAHS program by approaching the students.

Table 2. Characteristics of the respondents (n = 30)

Students' Characteristics	N (%)
Average age (mean ± SD)	14.56 ± 1.56
Sex	
Male	7 (23.4)
Female	23 (76.7)
Grade	
I	12 (40)
II	12 (40)
III	6 (20)

through the development of HIV/AIDS prevention, peer educators, and community partnership programs. The final step of the SAHS intervention was the reevaluation of the program's sustainability, performed as part of community partnership. Then, the researcher administered a post-test analysis through questionnaires on the students' knowledge, their attitude toward HIV prevention, and sexual behavior.

Data Analysis

Descriptive and inferential statistical analysis was employed to analyze the demographic data and the primary variables. The differences in the results after the intervention were tested using a paired t-test.

RESULTS

A total of 30 students agreed to participate in the research. Most of the students (76.7%) were female with an average age of 14.56 years old (SD = 1.56) (Table 2). The source of information that most students (86.7%) commonly used was the Internet. Some of the students (86.7%) knew about HIV but did not know about the difference between HIV and AIDS. The majority of students (76.7%) think that HIV is a horrible disease and 76.7% believe that HIV can be transmitted through shaking hands or touching (2).

The effectiveness of SAHS on the Students' Knowledge, Attitude, and Behaviors on HIV Prevention

Based on the pre-test, it was found that the average score of the students' knowledge of HIV prevention was 11.8 (SD = 1.95). The majority of students (66.7%) provided incorrect responses for the items on how HIV is transmittable through sexual intercourse, how HIV is not transmittable through sharing food containers or toilet seats, and the ways to avoid being infected with HIV. Most of the students (83.3%) know that HIV is a contagious disease and that it is transmitted through blood contact. The average score for attitude on HIV prevention was 33.7 (SD = 2.62). The negative attitude that the students' responses indicate show that it is fine to perform sexual/intimate activities such as holding hands, kissing on the lips, and kissing the neck. However, it is not okay to perform sexual intercourse. The mean score of behavior was 16.72 (SD = 2.5). The most frequently reported behavior concerning sexual activities was kissing a partner's cheeks as a display of affection and intimately hugging a partner to provide a sense of security.

Based on the results of paired t-test, it was found that SAHS is effective in improving the Senior High School students' knowledge, attitude, and behavior concerning HIV transmission risk, particularly through sexual intercourse (p-value< 0.001, with a differential score of 3.2 for knowledge, 2.19 for attitude, and 1.98 for behavior (Table 3). The average score of the students' knowledge was 17.9 (SD = 3.21), of the students' attitude was 35.2 (SD = 1.34), and of the students' behavior was 15.8 (SD = 2.03). In detail, most students (86.7%) know that HIV is transmitted through sexual intercourse and that is not transmitted by shaking hands. 90% of students know that the best way to prevent HIV through abstinence and being faithful. Concerning attitude and behavior, some students understand that having a sexual partner before marriage is not good, including the kissing and hugging.

Table 3. SAHS's program effectiveness concerning the Senior High School students' knowledge, attitude, and behavior and HIV prevention (n = 30)

	Pre-test Mean	Post-test Mean	p-values	t-value
Knowledge	11.8 (SD = 1.95)	17.9 (SD = 3.21)	0.001	3.2
Attitude	33.7 (SD = 2.62)	35.2 (SD = 1.34)	0.001	2.19
Behavior	12.67 (SD = 2.5)	15.8 (SD = 2.03)	0.04	1.98

DISCUSSION

The study findings showed that the program of SAHS was effective at improving the adolescents' knowledge, attitude, and behavior to do with HIV prevention. The results of this study were similar to the previous study conducted in Spain, which found that improving

the skills related to having a healthy sexuality was an effective approach to improving knowledge, attitude, and behavior on HIV prevention among adolescents (Morales, 2014). However, there were some differences in the intervention program; namely, the previous study did not involve the community or health education institutions to ensure the sustainability of the program which may result in the discontinuation of the program. Providing a health education program with a very clear structure is important to improve the knowledge, attitude and practices related to HIV prevention among adolescent. The students' knowledge, attitude, and behaviors on HIV prevention, particularly concerning HIV transmission, is important. Adolescents are the group of society that is the most vulnerable to the influence of unsafe sexual behavior and narcotic abuse because adolescents have their own unique characteristics. They are emotionally unstable, they are still discovering themselves (finding their identity), they are at the age of transition from adolescence to maturity et cetera (Yusuf LN, 2015). Due to the process of self-discovery, they are easily swayed and are still uncertain about who their role model should be. They are also easily influenced by people's lifestyles around them. A meta-analysis reported that the development of the peer educator is more efficient at reducing the risky sexual behaviors of adolescents. The cost is also lower than the cost of involving healthcare institutions (Kim, 2008; Medley, 2009; Simoni, 2011; Arnol, 2012). Although previous research studies have utilized the peer educator approach in their implementation, the materials were unstructured and only developed knowledge. They did not focus on skill development so that the subjects were still had a high risk of being infected with HIV. Future research studies focusing on the development of the peer educator approach using technology are needed for a sustainable program to be operational. There are some limitations that should be acknowledged in this study. First, we conducted a queasy experimental research design without a control group, which thus not determine the true effect of the program. Second, the sample size was smaller, which resulted in less sensitivity to do with detecting power or magnitude for the effect of the program. Third, we selected the sample using convenience sampling, which introduced a selection bias.

CONCLUSION

In conclusion, we found that the SASH program is effective at improving the knowledge, attitude, and behaviors toward HIV prevention among adolescents. Future research studies are needed to improve the sustainability of the program, such as through the development of an integrated peer-educator and using technology as the type of delivery and promotion media.

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