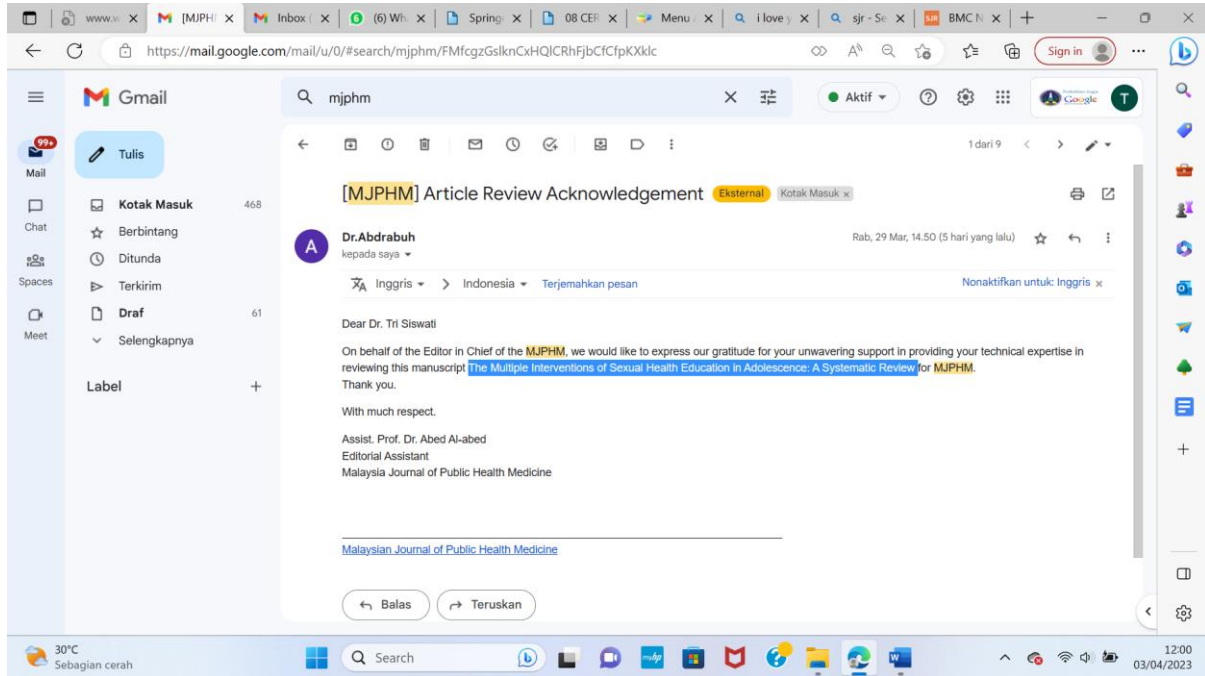


Review : The Multiple Interventions of Sexual Health Education in Adolescence: A Systematic Review



MALAYSIAN JOURNAL OF PUBLIC HEALTH MEDICINE

(MJPHM)

EVALUATION FORM

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Kindly fill in this form as accurate as possible. Thank you for your kind cooperation.

TOPIC/SECTION	ACCEPTABLE*	COMMENTS+
Title	ok	
Abstract		Please add detail method
Introduction		Avoid the redundant Improve the english text Add magnitude of the problem, and what are the previous intervention
Methodology <ul style="list-style-type: none">- Population- Sampling & Sample- Data Collection- Data Analysis- Definition	ok	
Results <ul style="list-style-type: none">- Descriptive- Analytic / Hypothesis- Testing- Data Presentation = Tables, figures etc	ok	
Discussion <ul style="list-style-type: none">- Magnitude/Consistency- Cause-effect relationship		Please see review attached

- Bias / Limitation		
Conclusion		U can mention clearly what type/contains/requirement of intervention so that health programmer can implement your recommendation. What others policy implication?
References - Format MJPHM		Write the reference as guideline Better u take an original research reference 5 years up I (replace for articles original research before 2018)

- * Tick ✓ if Yes and X if No
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Detail Comments (please advise the authors on how to improve their paper)

Please kindly improve English

Avoid redundant

Introduction; Add EBM, % or proportion or others

Please added 1 alinea bout how magnitude of the problem?

Discussion,

Alinea 2, last sentences. Please add detail the information of research: when, where, the subject charactestic etc so this finding (ref no 24) can support your general finding. Different subject charactestic affect the finding.

Alinea 4, How you relate to your findings

Conclusion: U can mention clearly what type/contains/requirement of intervention so that health programmer can implement your recommendation. What others policy implication?

References : Write the reference as guideline

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RECOMMENDATION (tick v)

= Accepted for publication (with minor corrections)

= Accepted for publication (after major corrections)

= To be resubmitted

= To be rejected

SIGNATURE



(Dr. Tri Siswati,SKM,M.Kes)

The Multiple Interventions of Sexual Health Education in Adolescence: A Systematic Review

ABSTRACT

Introduction: Sexual and reproductive health is an essential basis for the economic development of society. The consequences of risky sexual behavior in the age group <25 years can threaten health higher than other age groups. Various programs have been implemented to address sexual and reproductive health problems, but free sexual behavior in adolescents is still high. This systematic review was conducted to analyze sexual health education interventions in preventing risky sexual behavior in adolescents. **Method:** A systematic review using the Preferred Reporting Items for Systematic Review and Meta-Analysis (PRISMA) system and the Joanna Briggs Institute (JBI) as a guide in measuring study quality. Data were retrieved using four databases (Scopus, ScienceDirect, PubMed, and Web of Science) published in the last six years. **Result:** Ten articles were included in the final review. Five articles mention interventions such as knowledge transfer, simulation, and role play, three articles mention group discussion interventions, one article mentions Health Education and Relationship Training. One article mentions Personal Responsibility Education Program interventions to increase knowledge, change intentions in forming positive attitudes, subjective norms of behavior, behavioral control, and self-efficacy in preventing sexual behavior. **Conclusion:** Prevention of sexual behavior based on the theory of planned behavior is important among adolescents to reduce this impact because adolescents are a group that is vulnerable to sexual behavior. This intervention can be an alternative to prevent risky sexual behavior in adolescents as a direction to change intentions by influencing attitudes, subjective norms, and perceived behavioral control.

Keywords: Adolescent, Sexual education, Theory of Planned Behavior, Sexual behavior

INTRODUCTION

Sexual and reproductive health is an important basis for the growth and economic development of society. The consequences of risky sexual behavior in the age group < 25 years can threaten health higher than other age groups (1). The population under the age of 25 makes up almost half of the world's population and the population in the age range of 10-19 years is 1/5 of the world's population and 85% of them live in developing countries (2). Adolescence or the period from the age of 10 to 19 years is a period of considerable sexual development in applying sexual risk behavior (3) Adolescents who are sexually active have a higher risk of being exposed to various sexually transmitted infections (STIs) such as Human Immuno-deficiency (HIV), hepatitis C, hepatitis B, and various other sexually transmitted infections (4). Globally, the cause of death in adolescent girls aged 15-19 years is due to complications from pregnancy and childbirth (5). Psychologically, sexual behavior can cause adolescents to experience regret, depression, to the risk of suicide because of losing their future and being unprepared to accept responsibility for their sexual behavior (6).

Sexual relations in adolescents usually start from getting acquainted with the opposite sex, sexual behavior, holding hands, kissing, and even having sex (7). Risky behavior is defined as sexual behavior that threatens because it can cause various kinds of diseases, both physically and mentally (8). Hurlock (1994) states that the cause of risky sexual behavior in adolescents is influenced by 2 factors, namely external and internal factors (9). Internal factors such as biological, spiritual, philosophical, psychological, ethical and moral factors. While external factors in the form of

environmental influences such as peer association, a family is not harmonious or broken home, a place to live close to the place of prostitution, and a lack of health education for adolescents (10). Lack of knowledge about sexual health and inadequate knowledge of sexual health lead to risky behavior and Sexually Transmitted Diseases (STDs) (2). Thus, it is necessary to reduce these risky sexual behaviors and encourage adolescents to avoid sexual behavior with more positive activities.

Health education is very important in preventing sexual behavior where health education is the best approach for people, especially adolescents who are in high-risk groups (Rich et al, 2014 dalam Jeihooni *et al.*, 2019). The results of Jeihooni et al (2019)'s research shows that educational interventions improve behavior control skills and the ability to avoid risky sexual behavior. Adolescents must acquire knowledge about sexual health and skills that are useful and necessary for a safe and healthy sexual and reproductive life (12). Providing comprehensive sexual education to adolescents in schools has the potential to increase their knowledge; improve their attitudes and behavior towards the prevention of unsafe sexual behavior (13). The effectiveness of educational interventions depends on the proper application of behavioral science theory. Theory-based health education interventions have a significant impact on sustainable development, promotion, and activities (14). The Theory of Planned Behavior (TPB) is one of the main theories used to design evidence-based interventions (1).

Fishbein and Azjen (1991) argue that the intention to behave in the Theory of planned behavior is determined by three evaluative constructs, namely attitudes, subjective norms, and perceived behavioral control. Attitude represents a person's overall evaluation of the anticipated outcome (favorable versus unfavorable) of the behavior (15). Subjective norms are perceived social pressures to engage or not engage in a behavior. Perceived behavioral control is people's perception of their ability to perform certain behaviors (16). The above factors determine a person's behavior and, if adjusted, bad behavior can be corrected (14). TPB is widely used in behavior prediction and plays an important role in explaining behavior, especially in explaining sexual behavioral intentions (17). Based on the above discussion, this study aims to determine the effectiveness of educational programs based on the theory of planned behavior for the prevention of risky sexual behavior in adolescents.

RESEARCH METHOD

A systematic review was carried out using the Preferred Reporting Items for Systematic Review and Meta-Analysis (PRISMA) system as a comprehensive synthesis and relevant study on the effect of health education based on the theory of planned behavior on the prevention of risky sexual behavior in adolescents.

Search Strategy

The systematic review used four electronic databases (Scopus, PubMed, Web of Science and Science Direct) to search for suitable studies. Database search is carried out in July-August 2022. Keywords was using MeSH term such as ((Health Education) OR (Health Program) OR (Education)) AND ((Adolescence) OR (Young adult) OR (Student)) AND ((Sexual Behavior) OR (Sexual)) AND (Theory of Planned Behavior). The search results were limited to cross-sectional studies, quasi-experimental and Randomized Control Trials (RCT), published from the last 6 years (2017-2022) using English and taking open access journals.

1. Table PICOS framework

Criteria	Inclusion	Exclusion
Population	Adolescent	Communities other than adolescents
Intervention	Sexual Health Education	Other than Sexual Health Education
Comparator	No comparator	
Outcome	Prevention of sexual behavior	Not showing the prevention of

		sexual behavior
Study Design and	Original research article	Review articles

Study Selection

During the article screening process, researchers defined general reasons for the exclusion criteria, including irrelevant type of study, incomplete description of sexual health education on prevention of risky sexual behavior in adolescents and inappropriate sampling. The search results obtained as many as 26 articles, then a feasibility assessment was carried out and adjusted to the inclusion criteria so that the remaining 10 (ten) full text articles were worthy of review.

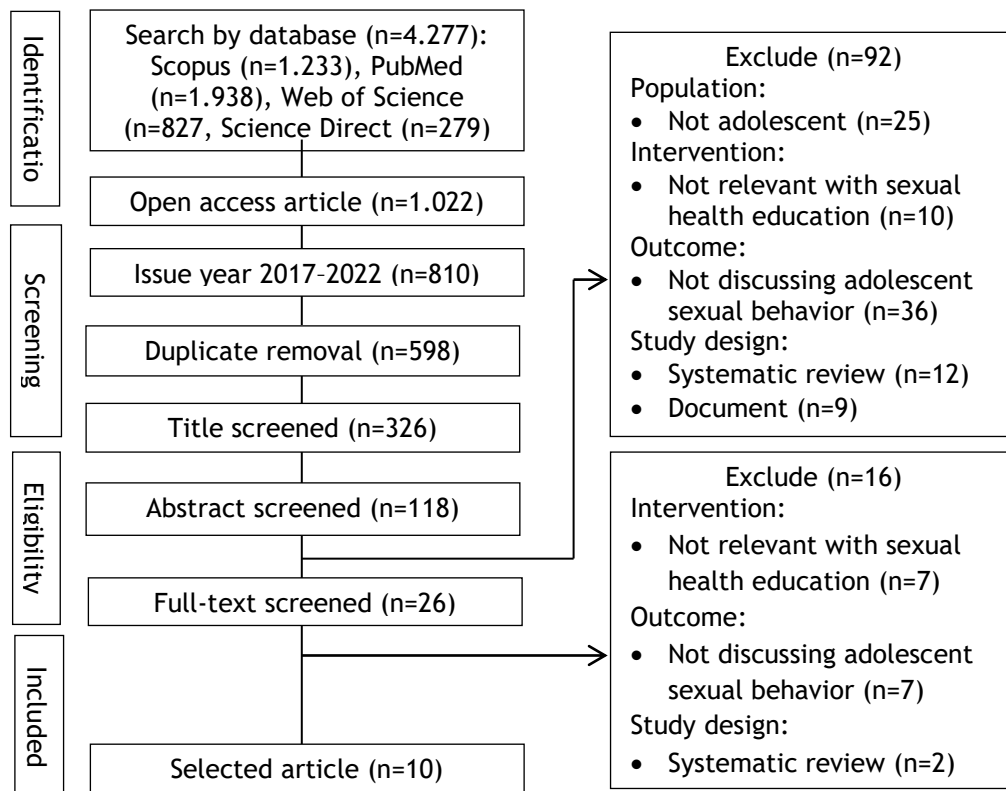


Fig. 1 the PRISMA flow diagram

Quality assessment

Critical appraisal uses The Joanna Briggs Institute (JBI). If the research score is 50% in the critical appraisal, which is the limit point that has been determined and agreed upon by the researcher, it will be included in the inclusion criteria. Scores < 50% were excluded because they were considered of low quality to avoid bias on the validity of the results and review recommendations. At the final screening, eleven studies scored higher than 50% and could be used to perform data analysis.

Data extraction and analysis

Relevant information in the review was extracted, listed: author, year, country, theoretical framework, research objectives, learning, research design, sample size, sampling procedure, participant description, reliability and validity, measurement instruments, analytical and statistical methods, and analysis results. The descriptive method uses a narrative approach by collecting facts about the effectiveness of the intervention used to synthesize information in a systematic review.

RESULT

Study characteristics

The findings were 10 articles that met the critical assessment criteria (Table 2). The characteristics of the study are multi-regional, namely the Iran (4 articles), USA (2 article), Thailand (1 article), Colorado (1 article), South Africa (1 article) and Ghana (1 article). All respondents are adolescents aged 13-19 years. The methods used were Randomized Controlled Trial (RCT) (5 article), Quasi-experimental (4 article) and Pre-post test study (4 articles).

Intrervention of Sexual Health Education

Description of intervention

Health education strategies are carried out to determine behavioral goals in each learning area using appropriate methods and media. The ten articles that have been reviewed discuss the topic of sexual health in adolescents. The training program includes education about sexual and reproductive in adolescents, attitudes toward sexual prevention, subjective norms, and perceived behavioral control (1,3,11-13,18-20). In addition, it also teaches adolescents how to communicate well with parents, friends, and those around them as supporters in increasing positive behavior (1,3,15).

Sexual health education is crucial in preventing risky sexual behavior in adolescents. Ten articles discuss various methods used to provide comfort and convenience for adolescents in receiving the health education that has been given.

Knowledge transfer

Knowledge transfer to introduce and explain more deeply about the topic discussed in this case is the prevention of risky sexual behavior (15). Some of the topics presented in the ten articles are about sexual and reproductive health, HIV, teenage pregnancy and contraceptive use. Transfer of knowledge through information exposure, presentations, lectures, questions and answers as well as through media such as educational videos and booklets can show an increase in knowledge and attitudes toward preventing sexual behavior in adolescents (13). The sensitivity of the attitudes felt towards important issues such as sexual and reproductive health can be imagined. This attitude is an important factor that encourages and motivates adolescents to apply preventive behavior, so educational programs must exist as part of youth activities to increase the perceived vulnerability of adolescents. (1).

Group discussion

Change intentions can be achieved by influencing attitudes, subjective norms, and perceived behavioral control (19). Group discussions can build a safe space for adolescents to express their feelings and opinions, improve communication between parents and children, and build positive beliefs in determining behavior for adolescents. Faith is the essence of understanding one's intentions (1). The Dual Approach Program (AAP) was developed specifically for young women and parents in a social context which is an approach program in the form of Focus Group Discussions (FGD) between parents and children to improve communication about the strengths and barriers involved with sexual prevention intentions and goal setting. and planning strategies to achieve the intention to prevent sexual behavior. The results show that the Dual Approach Program is more effective than programs targeted only at adolescents because parental sexual communication behavior can contribute to positive changes in positive attitudes, subjective norms for behavior and perceived behavioral control of adolescents (18).

Missouri Personal Responsibility Education Program

Evaluation of the prevention program for risky sexual behavior in adolescent pregnancy shows that in addition to being caused by the school syllabus, the intervention is also associated with delaying sexual activity, reducing the number of partners or frequency of sex, and increasing the use of condoms or contraceptives to prevent pregnancy. To reduce the teen pregnancy rate, the Personal Responsibility Education Program (PREP) prevention program was implemented (20). The PREP-based program is an integral part of a theory to demonstrate changes in knowledge,

intentions, attitudes, and self-efficacy in influencing adolescent sexual health decisions and behavior (21). Overall, adolescents gained knowledge and showed an increase in positive attitudes towards pregnancy prevention, had an increased intention to use condoms during sexual behavior, and did not have sex. Knowledge and attitudes resulting from adolescent pregnancy prevention programs (i.e., changes in knowledge and attitudes, respectively) were associated with increased intentions to prevent sexual behavior (20).

Simulation

Self-efficacy is the most powerful structure for predicting behavior. So that there is a change in self-efficacy in individuals after actively participating in maintaining healthy behavior, people who have high self-efficacy will show extraordinary behavior, one of which is the ability to prevent sexual behavior (1). Environmental factors are needed to control self-efficacy such as lack of sufficient time, feeling embarrassed in front of parents when discussing sexual problems, or being disrespectful. Grow self-efficacy requires skills in decision making. Problem-based learning is done through simulation. Adolescents can discuss problems and convey ideas, ideas, and solutions that are packaged in a scenario to be conveyed by role playing or using media to make it easier for others to understand the information conveyed. From the results of the simulation activity, it has a positive impact on adolescents which shows an increase in knowledge and attitudes towards preventing sexual behavior that has an impact on teenage pregnancy. Adolescents consider themselves vulnerable to pregnancy and believe that the consequences of teenage pregnancy will have a negative impact on them (13).

Intervention Health Education and Relationship Training

Adolescents with emotional and behavioral difficulties (EBD) are at high risk for negative sexual health, including HIV, other sexually transmitted infections (STIs), and unplanned pregnancies. The development of technology-based sexual health education is very helpful for teenagers to get new information that is more effective and up-to-date (22). Health Education and Relationship Training (HEART) was developed to improve adolescents' ability to communicate assertively and improve sexual health outcomes for adolescents. Significantly, the HEART educational intervention can increase behavioral intentions, and improve communication skills, knowledge of STI/HIV, sexual self-efficacy, attitudes toward using condoms, and norms towards sexual behavior. HEART can encourage users to consider their sexual values, make healthy and directed choices of sexual activity, and implement choices in behavior that is appropriate for adolescents in self-development and adolescents who have different sexual experiences (3).

No	Author, Year	Country	Study design	Sample size	Age	Intervention	Duration
1	Manyapelo et.al (2019)	South Africa	RCT	428	18 years old	<p>Objective: to build knowledge and understanding, skills training, confidence building, and communication training on the prevention of sexual and alcohol use.</p> <p>Content: 1) Ideas about masculinity and responsibility, 2) Personal and sexual relationships, 3) General communication skills, 4) Alcohol and substance use</p> <p>Activities: In each session, one-hour prayer used for knowledge transfer, discussion, and dialogue, and one hour for skills training</p> <p>Duration: consists of 4 sessions and a duration of 3 hours each session</p>	3-4 month after intervention
2	Kamke, Widman and Desmarais (2020)	USA	Quasy-Experiment	167	12-19 years old	<p>Objectif: consider their sexual values, make healthy and informed sexual choices.</p> <p>Content: 1) safer sex motivation, 2) HIV knowledge, 3) sexual norms/attitudes 4) sexual self-efficacy 5) communication.</p> <p>Activities: run the HEART (Health Education and Relationship Training) program through a laptop computer in a private room</p> <p>Duration: 44 minute in 1 session</p>	not any
3	Fakari, et.al (2019)	Iran	Quasy-Experiment	80	12-14 years old	<p>Objectif: to increase knowledge and train adolescents' ability in control their emotions.</p> <p>Content: knowledge about sexual health, and how to control emotions.</p> <p>Activities: Stress physical activity training, Management training and coping strategies, and Review the content of the previous session and question and answer</p> <p>Duration: consists of 3 sessions which are conducted once a week every Monday and lasts 1 hour per session</p>	1 week after second intervention

No	Author, Year	Country	Study design	Sample size	Age	Intervention	Duration
4	Hattakitpanichakul, Phumonsakul and Viwatwongkasem (2018)	Thailand	Quasy-Experiment	80	12-13 years old	<p>Objectif: to prevent sexual behavior and improve communication on sexual topics between children and parents</p> <p>Content: sexual prevention cognitions, attitudes towards sexual prevention, subjective norms and perceived behavioral control.</p> <p>Activities: Information and discussions based on video clips related to prevention and the consequences of early sexual activity, interviewing parents to ask their opinion about their attitudes towards sexual behavior, conducting FGDs and role-plays on preventing sexual behavior.</p> <p>Duration: done 3 times in 1 month.</p>	1 week and 4 week after intervention
5	Yakubu, et.al (2019)	Ghana	RCT	363	13-19 years old	<p>Objectif: to improve their knowledge, attitudes and behavior towards pregnancy prevention</p> <p>Content: susceptibility and severe adolescent pregnancy, female reproductive system, personal and societal values, contraception and decision-making.</p> <p>Activities: Problem-based learning is done through simulation. Participants for presentations and present their solutions.</p> <p>Duration: consists of 5 sessions, 1 time in 1 week.</p>	1 week after the 5th intervention
6	Darabi, et.al (2017)	Iran	RCT	578	12-16 years old	<p>Objectif: to change behaviors that place adolescents at high sexual risk.</p> <p>Content: high-risk behavior, and reproductive and sexual health-related issues for the elderly</p> <p>Activities: training for adolescents using various communication techniques to improve knowledge, attitudes, subjective norms and behavior control.</p> <p>Duration: consists of 4 sessions (in two 45-minute halves with 15-minute break).</p>	6 month after intervention
7	Jeihooni, et.al (2018)	Iran	Quasy-Experiment	578	16-19 years old	<p>Objectif: teach adolescents about skills to understand risky situations, problem-solving skills to change their perceived behavioral control.</p> <p>Content: sexual behavior unsafe.</p>	3 month after intervention

No	Author, Year	Country	Study design	Sample size	Age	Intervention	Duration
						<p>Activities: educational programs through role-playing, showing learning video clips and holding a session in front of family members.</p> <p>Duration: consists of 8 sessions, for 50-60 minutes at intervals of one week.</p>	
8	Gibson, et.al (2020)	Colorado	RCT	156	14-18 years old	<p>Objectif: for education or instruction, modeling, and rehearsal.</p> <p>Content: Use of condoms and sexual behavior.</p> <p>Activities: a trained therapist demonstrates the steps for successful condom negotiation with a sexual partner, practiced by adolescents in a role-play discussion.</p> <p>Duration: consists of 2 sessions (each session for 1 hour).</p>	6 month after intervention
9	Farahani, Darabi, Yaseri (2020)	Iran	RCT	578	12-16 years old	<p>Objectif: improve knowledge, attitudes, social norms, behavior control, parental support, HIV intentions and behavior in adolescent girls.</p> <p>Content: HIV virus, and sexual risk behavior.</p> <p>Activities: The training was carried out through lecture methods, group discussions, and simulations.</p> <p>Duration: consists of 6 sessions (each session for 2 hours).</p>	6 month after intervention
10	Lowrey, Altman, and Jungmeyer (2021)	USA	Pre-post test	1.335	15-19 years old	<p>Objectif: to assess the sexual intentions of adolescents to use condoms, engage in sexual behavior, and not have sex as a result of implementing the Missouri Personal Responsibility Education Program (PREP).</p> <p>Content: sexual experience, knowledge, attitudes, self-efficacy, and behavioral components on sexual health and individual behavior</p> <p>Activities: PREP is implemented through classroom education by providing interventions incorporated into their curriculum.</p> <p>Duration: long term (2012/2013-2016/2017).</p>	6 months after program is over

DISCUSSION

This study aims to examine and identify preventive intentions in sexual behavior using the concept of theory of planned behavior (TPB). Several studies reveal that TPB is effective in predicting sexual risk behavior as well as various other behaviors. Society is gradually becoming more open to the idea of sexuality. Schools should pay more attention to the follow-up mechanism and the development of sexual education for adolescents. At present, the educational content mainly includes sex physiology education, sexual psychology education, and sexual ethics education. Interventions are not designed to target behavior directly, but to influence psychosocial attitudes, subjective norms, and perceived behavioral control which will then lead to stronger intentions to prevent and avoid unsafe sexual behavior or sexual relationships. (15). TPB-based sexual health education is one solution to overcome problems in adolescents and motivate them to behave so that it has a big impact on the future because most health problems are closely related to human behavior (2).

TPB-based sexual health education can be an appropriate intervention to prevent risky sexual behavior in adolescents. The results showed an increase in behavior change based on the theory of planned behavior (attitudes, subjective norms, perceived behavioral control and intentions) in adolescents who had been given sexual health education (3,11,12,18,19,23). The intention is a motivational factor that can influence behavior and shows the intensity of adolescent motivation as an effort to perform the expected behavior. The greater the intention to behave, the higher the likelihood to perform a behavior. Educational interventions can positively influence adolescent behavioral intentions to prevent sexual behavior (1). Adolescent intentions are influenced by several factors and these factors are closely related to the process of forming behavior. According to Ajzen (2011) states that intentions are influenced by attitudes, subjective norms and behavioral control (16). A higher intention to participate in sexual education programs can also prevent harmful behavior from occurring (24).

Adolescent attitudes towards risky sexual behavior mostly stem from a set of beliefs about the negative and positive impacts of preventing sexual behavior, where one of these beliefs is obtained from information and knowledge obtained by adolescents through sexual health education. Attitude is an important factor that encourages and motivates people to adopt preventive behavior (1,19). Adolescents must have a high level of sensitivity to themselves and the environment in order to control their behavior. Strategies to change attitudes are by providing information about the consequences and side effects of unsafe sexual behavior, health education about safe sexual behavior in education groups accompanied by an emphasis on providing information about negative consequences, unhealthy effects, complications and impacts that occur so that will influence adolescents in their behavior (12). Positive beliefs about the consequences of behavior affect and influence its continuation as a motivation to behave (2).

Subjective norms can affect adolescents in preventing risky sexual behavior, adolescents can consider the opinions of others where most countries consider that premarital sexual behavior should not be carried out and the impact of sexual risk behavior can be something that other people do not expect. Countries with a Muslim majority have a low level of risky sexual behavior in adolescents. This low prevalence could be due to social demands where adolescents may not be open in expressing their experiences because it is against social norms in the family and society not to have sexual activity before marriage. After all, premarital sex is generally not allowed (13,25). To increase subjective norms, it can be done with education about life skills and the influence of strategies such as educating teenagers to be able to conduct behavior towards sexual behavior (12).

The positive perception that following sexual health education can be useful, valuable, and is expected to have the greatest impact on adolescents' intentions to behave positively in this case is not to engage in sexual risk behavior. This implies that strategies are needed to reduce negative beliefs about sexual behavior and develop positive attitudes to increase intentions to prevent sexual behavior. The results of the study show that educational interventions improve behavior control skills and habits to avoid unsafe behavior in adolescents who have attended health education training (11,15,20).

This review article has several limitations and strength. The database search was conducted for articles published in only 2 months because the search was limited between November-December 2021. Then, the limited number of articles related to TPB-based sexual health education that matched the researcher's criteria so that the information presented was limited. The strength of this article review discusses in detail the effect of sexual health education on adolescents, not many articles discuss TPB-based sexual health education so this article has more potential to be applied to adolescents.

CONCLUSION

Prevention of sexual behavior is very important among adolescents to reduce the impact because adolescents are a vulnerable group to sexual behavior that has a risk of pregnancy, infectious diseases and psychological problems at a young age. Adolescents must receive sexual health education to increase their insight and behavior formation through health education based on the theory of planned behavior. These interventions can be an alternative to prevent risky sexual behavior in adolescents as a direction to change intentions by influencing attitudes, subjective norms, and perceived behavioral control.

ACKNOWLEDGMENT

The author would like to thank the supervisors and all parties who have participated in the preparation of this article.

CONFLICT OF INTEREST

The author declares there is no conflict of interest.

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