



**SEXUAL HEALTH EDUCATION BASED ON THE THEORY OF PLANNED
BEHAVIOR TO PREVENT RISKY SEXUAL BEHAVIOR IN ADOLESCENTS:
A SYSTEMATIC REVIEW**

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ABSTRACT

Risky sexual behavior is a serious issue as it is a major risk factor for the emergence of diseases such as Sexually Transmitted Infections (STIs), disabilities, and mortality among adolescents due to a lack of information about sexual health. The aim of this study is to prevent risky sexual behavior through health education based on the Theory of Planned Behavior (TPB). A systematic review was conducted using four electronic databases (Scopus, PubMed, Web of Science (WoS), and Science Direct) on previous studies employing cross-sectional, quasi-experimental, and Randomized Control Trials (RCT) designs from the last 5 years (2017-2021). The database search was performed from November to December 2021. The Joanna Briggs Institute (JBI) was used as a guide for assessing the quality of the studies, and PRISMA was used as the research guideline. Data analysis utilized descriptive analysis to identify themes. There were 11 articles that met the inclusion criteria in the review. All selected studies discussed sexual health education using the TPB approach. There was an improvement in behavior change based on TPB (attitudes, subjective norms, control, and intention) among adolescents who received sexual health education. The factors influencing adolescents' intentions are closely related to the process of behavior formation. These factors include attitudes, subjective norms, and behavioral control. A Sexual health education based on TPB can be an appropriate intervention to prevent risky sexual behavior among adolescents, as its priority is to strengthen behavioral intentions by enhancing attitudes, subjective norms, and behavioral control through continuous health education.

Keywords: adolescence; sexual health education; sexual risk behavior; TPB

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INTRODUCTION

Adolescence is a transitional period in human life, evolving from childhood to adulthood, marked by various changes in physical, behavioral, cognitive, biological, and emotional aspects (Kolin et al., 2021). Adolescents tend to face various health and social challenges. For example, engaging in sexual activity without adequate knowledge and skills for protection puts adolescents at a higher risk of unwanted pregnancies, unsafe abortions, and sexually transmitted infections, including HIV/AIDS (WHO, 2020). Risky sexual behavior among adolescents today is increasingly considered normal and no longer as taboo as it once was. However, risky sexual behavior poses a serious problem as it can be a major risk factor for the emergence of diseases such as Sexually Transmitted Infections (STIs), disabilities, and death among adolescents. Many adolescents also drop out of school due to pregnancy before marriage, resulting from increasingly permissive sexual behavior, leading to regret, depression, and even the risk of suicide.

Globally, the adolescent population has risen to its highest level in history, with the 15–24 age group accounting for 25% of sexually active behavior and representing almost 50% of all cases of sexually transmitted infections (Kam et al., 2019). Deaths among adolescent girls aged 15–19 globally are caused by complications from pregnancy and childbirth. Of all births worldwide, around 11% are by adolescent girls aged 15–19, with most occurring in developing countries. In Indonesia, 9% of adolescent girls aged 15–19 have given birth, meaning that 100 out of 1,000 adolescent girls have experienced childbirth. This number continues to rise every year (Qomariah et al., 2021). The increase in premarital sexual activity results in a higher impact of premarital sexual relations. Research by the National Commission on Child Protection revealed that in 17 major cities in Indonesia, 97% of junior and senior high school adolescents had viewed pornography, 93.7% of adolescents were no longer virgins, and 21.26% had undergone abortions (Ungsianik and Yulianti, 2017). According to data from the United Nations Development Economic and Social Affairs (UNDESA), Indonesia is one of the countries with a high rate of early marriage, at 34%, ranking 37th out of 158 countries worldwide, and second in the ASEAN region after Cambodia (Sisilia & Rindu, 2020).

Hurlock (1994) mentioned that the causes of risky sexual behavior in adolescents are influenced by two factors: external and internal factors (Yayan et al., 2016). Internal factors include biological, psychological, philosophical, spiritual, ethical, and moral aspects. External factors include the surrounding environment, such as peer groups, family disharmony or broken homes, proximity to prostitution areas, and a lack of sexual health education for adolescents (Pradanie et al., 2022). Health education is crucial in preventing sexual behavior, as it is the best approach for people, especially adolescents, who are in high-risk groups (Jeihooni et al., 2019). Adolescents must acquire knowledge about sexual health and skills necessary for a safe and healthy sexual and reproductive life. Sexual and reproductive health has significant implications for the physical health of adolescents (Morales et al., 2018). The effectiveness of educational interventions depends on the appropriate application of behavioral science theory. Sexual health education based on the Theory of Planned Behavior (TPB) showed a significant improvement in factual knowledge (Eggers et al., 2015). The Theory of Planned Behavior (TPB) is one of the main theories used to design evidence-based interventions. TPB assumes that attitudes, subjective norms, and perceived behavioral control lead to the development of behavioral intentions, which are the starting point for behavior formation (Darabi et al., 2017).

TPB not only determines the formation of beliefs but also acknowledges that other factors may influence a person's beliefs, such as personality and life values, including age, gender, economy, education, and environment. These factors are expected to influence intentions and perceptions of individual behavior, either directly or indirectly (Qomariah, 2020). Other research indicates that adolescent sexual behavior and the intention to engage in sexual behavior gradually increase over time. In fact, sexual behavior and the intention to engage in sexual behavior increase progressively from year to year in junior high school. Older adolescents tend to have higher intentions for sexual behavior than younger adolescents (Shek and Leung, 2016). Adolescents' perceptions of sexual behavior are shaped through knowledge gained from various sources, which then form their opinions on beliefs they hold. The Theory of Planned Behavior explains that, in addition to attitudes toward the behavior and subjective norms, individuals also consider their perceived behavioral control, which is their ability to perform a certain action (Glanz et al., 2016). This enables adolescents to improve their self-control by preventing risky sexual behavior, improving reproductive health, and reducing the incidence of risky sexual behavior. With support or intention, they can transform these beliefs

into positive actions. Based on this background, the objective of this systematic review is to analyze and identify preventive behaviors regarding risky sexual behavior in adolescents through sexual health education based on the Theory of Planned Behavior is needed.

METHOD

A systematic review was conducted using the Preferred Reporting Items for Systematic Review and Meta-Analysis (PRISMA) system as a comprehensive synthesis of relevant studies on the prevention of risky sexual behavior in adolescents through sexual health education based on the Theory of Planned Behavior.

Study Design and Database

Electronic databases, including Scopus, ScienceDirect, PubMed, and Web of Science (WoS), were used to search for relevant studies. The database search was conducted from November to December 2021. The question format for the search results used the PICOS framework (P = population, I = intervention, C = comparison, O = outcome, S = study type). PICOS was used to formulate the research question. The literature search was conducted using four groups of keywords based on Medical Subject Headings (MeSH) and combined with Boolean operators AND, OR, and NOT. The resulting search keywords were: ("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-experiments, and Randomized Control Trials (RCTs), published within the last 5 years (2017-2021), in English, and from open-access journals.

Inclusion and Exclusion Criteria

The studies selected will be based on several inclusion criteria, and those not meeting these criteria will be excluded. The inclusion criteria were formulated using the PICOS framework: using reputable databases, studies published within the last 5 years (2017-2021), samples consisting of adolescents aged 12-24 years, interventions involving sexual health education based on TPB, study designs including cross-sectional, quasi-experimental, and Randomized Control Trials (RCT), and studies written in English.

Table 1. PICOS

Criteria	Inclusion	Exclusion
Population	Adolescents aged 12-24 years old	Other age groups outside 12-24 years old
Intervention	Sexual Health Education	Other than sexual health education
Comparator	None	
Outcome	Prevention of sexual behavior	Does not address the prevention of sexual behavior
Study Design and Publication type	Quasy-Experimen, Randomized Control and Trial, Cross-sectional	Qualitative and Systematic review
Publication Years	2017-2021	Before 2017
Language	English	Other than English

Study Selection

A total of 190 articles were found from the search of 4 databases. Then, limits were applied based on publication year (N=91), open access records (N=51), and duplicates (N=14), resulting in a total of 37 remaining articles. Title screening was performed (N=37), followed by abstract screening (N=23), and full-text and eligibility assessment (N=11).

Eleven full-text articles were found to meet the criteria for inclusion in the systematic review. During the literature screening process, the researchers defined common reasons for exclusion criteria, including irrelevant study types, lack of comprehensive explanation on the prevention of risky sexual behavior in adolescents, and non-eligible samples.

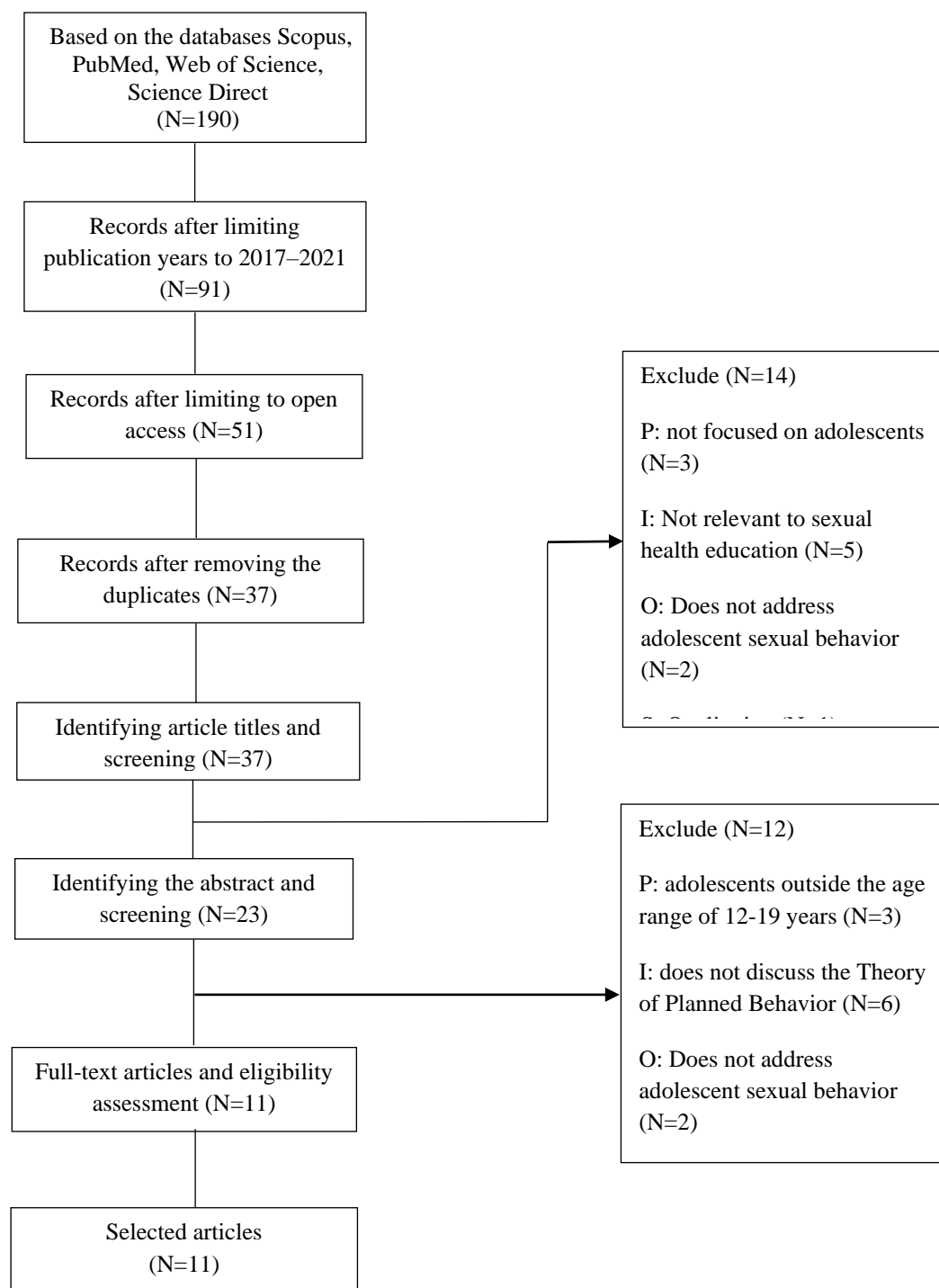


Figure 1. Flowchart of Literature Selection

Assessment of Study Quality and Risk of Bias

Critical appraisal was conducted using The Joanna Briggs Institute (JBI) for Cross-Sectional and Quasi-Experimental Studies to analyze the methodological quality of each study (N = 11). The Checklist for Quasi-Experimental Studies includes 10 questions, the Checklist for Analytical Cross-Sectional Studies includes 8 questions, and the Checklist for Randomized

Controlled Trials includes 13 questions. Assessment criteria use scores of “Yes,” “No,” “Unclear,” and “Not Applicable.” each “Yes” answer receives one point, while other scores receive zero points. The total score is then summed, and studies with a score of 50% or higher in the critical appraisal, which is the threshold set and agreed upon by the researchers, are included in the inclusion criteria. Scores below 50% are excluded due to their low quality, to avoid bias in the validity of the results and review recommendations. In the final screening, eleven studies achieved a score higher than 50% and were used for data analysis.

Data Extraction and Analysis

Relevant data in the review were extracted, including: authors, country, year, theoretical framework, research objectives, education, study design, sample size, sampling method, participant description, reliability and validity, measurement instruments, analysis techniques and statistics, and outcome analysis. Descriptive methods based on themes using a narrative approach were used to gather evidence about the effectiveness of interventions and to synthesize data in the systematic review results.

RESULTS

Study Characteristics

Based on the results from the database, language sources, and year of publication from (2017-2021), there are eleven articles met the criteria for systematic review (Figure 1). All selected studies discussed sexual health education using the Theory of Planned Behavior (TPB) approach. The research methods used in the studies were cross-sectional (six studies), quasi-experiment (three studies), and Randomized Control Trials (RCT) (two studies). All participants were adolescents, with three studies focused solely on adolescent girls, two studies on male adolescents who were drug addicts, and six studies on both male and female adolescents. The adolescents' ages ranged from 12-24 years, which encompasses early adolescence, middle adolescence, and late adolescence. The studies were conducted in schools (nine studies) and rehabilitation centers (two studies). Most of the studies were conducted in Iran (four studies), China (two studies), and in Colorado, the UK, Malaysia, South Korea, and Thailand (one study each).

The Goals of Sexual Health Education

The goal of sexual health education is to change behaviors that place adolescents at high risk. They need to receive accurate information about sexual health, adolescent health, sexually transmitted infections (STIs), HIV prevention and transmission, and an understanding of how adolescents are particularly vulnerable to risky behaviors. They also need skills to make healthy life choices (Farahani et al., 2020). Research findings indicate that the Theory of Planned Behavior (TPB) is suitable for predicting safe sexual behavior intentions in adolescents. To enhance sexual health knowledge and sexual behavior among adolescents, it is important not only to strengthen concepts of subjective norms and perceived behavioral control but also to provide education on sexual health (Lin et al., 2021; Tseng et al., 2020). Gaining accurate knowledge and a positive attitude toward safe sexual behavior, understanding that risky sexual behaviors can be prevented, and receiving social support from those around them such as family, peers, psychologists, coaches, and teachers are crucial (Moeini et al., 2017). The results show that there is room to improve intentions toward each behavior by targeting specific determinants in school sex education. These findings provide evidence for enhancing sexual health through tailored sex education and support the argument for continuing TPB-based interventions rather than stopping them (Bayley et al., 2017). Successful interventions targeting attitudes and intentions may potentially change behavior to prevent risky sexual behavior (Gibson et al., 2020).

Description of Intervention

Health education strategies are implemented to determine behavioral goals in each learning area, including knowledge, which is addressed using lecture and question-and-answer methods. For attitudes, methods such as role-playing, animation training, story writing, brainstorming, and teaching skills to understand risky situations, problem-solving skills to change perceived behavioral control, assertiveness skills, and skills to resist risky suggestions are used. Additionally, promoting condom use and informing subjects about the negative effects of having multiple sexual partners are also emphasized (Jeihooni et al., 2019).

For subjective norms, education includes life skills and social influence strategies, such as teaching refusal skills for risky sexual behaviors (Moeini et al., 2017). Perceived behavioral control is addressed using story writing, small group discussions (FGDs), and booklets (Darabi et al., 2017). To achieve an effective prevention program, four intervention sessions are conducted for 40-45 minutes each, tailored to the pre-determined methods (Moeini et al., 2017). Topics include unsafe sexual behavior, using educational videos, PowerPoint presentations, slides, and pamphlets to adjust subjects' attitudes and provide them with information about the outcomes, effects, and consequences of unsafe risky behaviors, thereby enhancing emotional development (Jeihooni et al., 2019).

Challenges in Implementation

Sexual education is also a significant challenge. This difficulty is particularly evident in implementing comprehensive sexual education, which involves multidisciplinary knowledge and thus requires teachers or educators to have specific competencies. However, most schools and higher education institutions seem to have recognized the importance of sexual education for adolescents (Lin et al., 2021).

Health Education Based on The Theory of Planned Behavior

The high rate of unsafe sexual behavior among adolescents may be due to the fact that such behaviors are often pursued purely for sexual pleasure or because individuals are unaware of and insensitive to the negative outcomes of unsafe sexual behavior and their life conditions are influenced by their peers. TPB-based education programs with strategies aimed at changing attitudes, social norms, and perceived behavioral control can address these issues (Moeini et al., 2017).

Intention

Intention is a motivational factor that can influence behavior and indicates the intensity of adolescents' motivation to engage in the desired behavior. The stronger the intention to behave, the higher the likelihood of performing a particular behavior. Educational interventions can positively influence students' behavioral intentions to prevent sexual behaviors (Darabi et al., 2017). The intention to prevent behaviors in adolescents can be influenced by self-efficacy perceptions, social belief perceptions, and social influence perceptions. Additionally, factors such as parents' education level, adolescents' openness in communicating with parents/guardians about sexual issues, and the amount of sexual health information adolescents receive through school health education can also impact their intention to prevent sexual behavior (Baudouin et al., 2020). A higher intention to participate in sexual education programs can also help prevent risky sexual behaviors (Je et al., 2020).

Attitude

Attitude is an important factor that drives and motivates individuals to adopt preventive behaviors (Darabi et al., 2017). Adolescents need to have a high level of sensitivity to

themselves and their environment in order to control their behavior. Strategies to change attitudes include providing information about the consequences and side effects of unsafe sexual behavior, health education on safe sexual practices within educational groups, and emphasizing the negative consequences, unhealthy effects, complications, and impacts. This approach is intended to influence adolescents' attitudes (Moeini et al., 2017).

Subjective Norm

Social norms can influence adolescents' intention to avoid risky sexual behavior (Baudouin et al., 2020). In countries with a predominantly Muslim population, the level of risky sexual behavior among adolescents is relatively low. This low prevalence may be due to social pressures where adolescents might not openly share their experiences due to conflicting social norms within families and communities that discourage sexual activity before marriage, as premarital sex is generally prohibited (Abdullah et al., 2020). To enhance subjective norms, education on life skills and social influence strategies can be implemented, such as teaching adolescents how to refuse risky sexual behavior (Moeini et al., 2017).

Perceived Behavior Control

The perception of an individual regarding the ease or difficulty of a particular behavior is related to control beliefs, which refer to beliefs about factors that may facilitate or hinder the performance of a behavior (Jeihooni et al., 2019). These factors include sociodemographic elements such as age, grade level, religiosity, students' leisure activities, whether the students currently have close friends, if they are in a romantic relationship, parental marital status, and parenting styles, as well as lifestyle factors such as alcohol use, smoking behavior, drug use, and internet use for viewing pornography (Baudouin et al., 2020).

DISCUSSION

This study aims to evaluate and identify preventive intentions regarding sexual behavior using the Theory of Planned Behavior (TPB). Several studies have revealed that TPB has proven effective in predicting sexual risk behaviors as well as various other behaviors. Society is gradually becoming more open to the concept of sexuality. Schools need to pay more attention to follow-up mechanisms and the development of sexual health education for adolescents. Currently, educational content primarily includes sexual physiology education, sexual psychology education, and sexual ethics education. From the perspective of sexual knowledge, fluctuations and regulation of psychological emotions during physiological sexual development, as well as addressing issues between males and females and personality formation, must be considered. Therefore, schools should provide sexual education programs to ensure that knowledge and viewpoints are accurately conveyed among adolescents (Tseng et al., 2020).

Sexual health education based on TPB can be an appropriate intervention to prevent risky sexual behavior among adolescents. The research results show a significant improvement in behavior change based on the Theory of Planned Behavior (attitude, subjective norms, perceived behavioral control, and intention) in adolescents who have received sexual health education (Moeini et al., 2017). Adolescent intentions are influenced by several factors closely related to the formation of behavior. According to Ajzen (2011), intentions are influenced by attitudes, subjective norms, and behavioral control (Ajzen, 2011). Other research results show that sexual and reproductive education based on the TPB is effective in increasing intentions in adolescent sexual reproductive health behavior (Darabi et al., 2017). Intention becomes a motivating factor influencing behavior and indicates the intensity of motivation as well as the individual's effort in performing an action. The stronger the

behavioral intention, the greater the likelihood that the behavior will be carried out (Abdullah et al., 2020).

Adolescents' attitudes towards risky sexual behavior largely stem from a set of beliefs about the negative and positive impacts of preventing sexual behavior, which are partly derived from the information and knowledge obtained through sexual health education. Research results show a significant improvement in attitudes towards sexual behavior. Before the educational intervention, most adolescents believed that the impacts of sexual behavior were serious issues for others and were not a concern at school. However, after the intervention, the majority of adolescents changed their views and believed that sexual behavior was a serious issue affecting everyone's well-being (Farahani et al., 2020).

Subjective norms can influence adolescents in preventing risky sexual behavior, as adolescents may consider the opinions of others. In many countries, premarital sexual behavior is considered unacceptable, and the impacts of risky sexual behavior can be undesirable to others. Research results show a linear increase in knowledge and gradual changes in behavioral control and subjective norms in subsequent years, with an overall increase in adolescents' intentions to prevent sexual behavior (Bayley et al., 2017). Other research result show the intervention sexual health education based on the TPB had also significant effect on subjective norms among students regarding to prevent sexual behavior. Social norms are influenced by family, peers, and the school environment (Farahani et al., 2020).

Based on the TPB Model (Ajzen, 2011) perceived behavioral control can influence behavioral intentions and indirectly affect actual behavior (Lin et al., 2021). Positive perceptions that participating in sexual health education can be beneficial, valuable, and expected to have the greatest impact on adolescents' intentions to behave positively, specifically avoiding risky sexual behavior. This implies the need for strategies to reduce negative beliefs about sexual behavior and to develop positive attitudes to enhance intentions to prevent sexual behavior. Research results indicate that educational interventions improve the skills to control behavior and the ability to avoid unsafe sexual behavior among adolescents who have participated in sexual health education training (Jeihooni et al., 2019).

CONCLUSION

Sexual health education based on the Theory of Planned Behavior (TPB) can be an appropriate intervention to prevent risky sexual behavior among adolescents. Providing sexual health education to adolescents is crucial to increase their knowledge of sexual health and sexual behavior. This approach strengthens not only the concepts of subjective norms and behavioral control but also the transmission of knowledge about sexual education, fostering adolescents' intentions to engage in positive sexual behavior.

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