

## Efficacy of Programs Designed to Reduce the Incidence of Premarital Sexual Behavior Among Adolescents: A Systematic Review

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### Abstract

The incidence of premarital sexual behavior worldwide is increasing despite the fact that it is known that it may cause health and psychological problems. Hence, interventions are needed to reduce the incidence of premarital sexual behavior. The aim of this study was to provide an overview of the reported interventions used to reduce the incidence of premarital sexual behavior in adolescents and identify the implications for nursing practice. A systematic review was conducted using The Preferred Reporting Items for Systematic reviews and Meta-Analyses (PRISMA) guidelines. The Scopus, Science Direct, Web of Science, and ProQuest databases were searched using the keywords "premarital sexual behavior" and "sexual," and three researchers independently examined the resultant selected full-text articles. Articles published between 2020 and 2022 that described studies with a randomized controlled trial (RCT) design and that were published in English and had the full text available were included. The quality of each article was assessed using the Joanna Briggs Institute Critical Appraisal Checklist. Seven articles met the inclusion criteria and were subsequently analyzed. Our study showed that different types of interventions have been tested to variously enhance education, motivation, skills, and empowerment. The findings of our study have implications for nursing practice in terms of the creation of intervention-based programs and standard operating procedures for implementing programs designed to reduce the prevalence of premarital sexual behavior.

**Keywords:** adolescent, incidence, randomized controlled trial, sexual behavior

### Abstrak

**Program Efikasi yang Dirancang untuk Menurunkan Kejadian Perilaku Seksual Pranikah pada Remaja: Tinjauan Sistematis.** Angka kejadian perilaku seksual pranikah di seluruh dunia semakin meningkat meskipun diketahui dapat menimbulkan permasalahan kesehatan dan psikologis. Oleh karena itu, diperlukan intervensi untuk mengurangi kejadian perilaku seksual pranikah. Tujuan dari penelitian ini adalah untuk memberikan gambaran tentang intervensi yang digunakan untuk mengurangi kejadian perilaku seksual pranikah pada remaja dan mengidentifikasi implikasinya terhadap praktik keperawatan. Tinjauan sistematis dilakukan dengan menggunakan pedoman PRISMA. Basis data Scopus, Science Direct, Web of Science, dan ProQuest dicari menggunakan kata kunci "perilaku seksual pranikah" dan "seksual", dan tiga peneliti secara independen memeriksa artikel teks lengkap pilihan yang dihasilkan. Artikel yang diterbitkan antara tahun 2020 dan 2022 yang menjelaskan penelitian dengan desain randomized controlled trial (RCT) dan diterbitkan dalam bahasa Inggris serta teks lengkapnya disertakan. Kualitas setiap artikel dinilai menggunakan Joanna Briggs Institute Critical Appraisal Checklist. Tujuh artikel memenuhi kriteria inklusi dan kemudian dianalisis. Penelitian kami menunjukkan bahwa berbagai jenis intervensi telah diuji untuk meningkatkan pendidikan, motivasi, keterampilan, dan pemberdayaan. Temuan penelitian kami memiliki implikasi terhadap praktik keperawatan dalam hal penciptaan program berbasis intervensi dan prosedur operasi standar untuk implementasi program yang dirancang untuk mengurangi prevalensi perilaku seksual pranikah.

**Kata Kunci:** kejadian, perilaku seksual, remaja, uji coba terkontrol secara acak

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## Introduction

Adolescence is a transitional developmental stage during which individuals move from childhood to adulthood and experience considerable growth and development. Psychosexual development occurs during adolescence, and adolescents begin to like others the opposite sex (França & Frio, 2018; Saliates et al., 2017). Even though adolescents know the consequences that may arise from having sexual relations with those of opposite sex, the incidence of premarital sexual behavior is increasing (Gebreyesus et al., 2019; Koray et al., 2017; Mundhiro et al., 2021). Data were recorded in the Indonesia Demographic and Health Survey (IDHS) 2017, with up 6,750 women and 7,713 men reporting premarital sexual behavior (National Population and Family Planning Board [BKKBN] et al., 2018). Premarital sexual behavior includes going on a date, kissing (on the lips, forehead, cheek, and/or chin), hugging, holding hands, wanting to be close, and having a sexual relationship. The consequences of undertaking risky premarital sexual behavior include health and psychological problems, such as contracting sexually transmitted infections (e. g., human immunodeficiency virus [HIV]), unwanted pregnancy, managing shame associated with unwanted pregnancy and dropping out of school (Watofa et al., 2019).

In this global era, an enabling factor that is influencing adolescent premarital sexual behavior is the presence of technology which has both positive and negative impacts. On the one hand, technology eases adolescents' access to information about sexuality through printed material, television, the internet and social media (Liu et al., 2020). In addition, an adolescent's internal self-efficacy can influence their engagement in premarital sexual behavior. Factors that make it difficult to say "no" to unwanted sex include low self-esteem and an underlying desire to maintain a relationship (Tomašević et al., 2022). It is also worth nothing that adolescents who have high self-esteem have an increased risk of having more than one sexual partner (Tegegne, 2022).

The Indonesian government has made several efforts to reduce the incidence of premarital sexual behavior, however, premarital sexual behavior among adolescents has been found to be increasing (Nurfurqoni & Hastuti, 2022). Despite facilities in urban and rural areas that provide access to good and correct information, the abovementioned factors continue to result in adolescents considering premarital sexual activity to be normal. Therefore, the aim of this research was to provide an overview of the reported interventions used to reduce the incidence of premarital sexual behavior among adolescents and information that the Indonesian government and cross-sector organizations can use to reduce premarital sexual activity.

## Methods

In this systematic review, the preferred reporting items for systematic reviews and meta-analysis (PRISMA) statement criteria were applied. All authors critically appraised all the abstracts and reviewed the full-text articles. The search strategy utilized in this study is shown in the flowchart in Figure 1.

A literature search was performed, and articles published in prominent health, nursing, and psychology journals were found. The following databases were searched: ProQuest, SCOPUS, Science Direct, and Web of Science. The keywords used to conduct the literature search were "premarital sexual behavior" and "sexual programs." The inclusion criteria set for articles to be analyzed in this study were as follows: 1) the described study included an intervention program, 2) article was published in English and had the full text available, 3) article was published between 2020 and 2022, and 4) the described study was a randomized controlled trial (RCT). The following types of articles were excluded: duplicate articles, articles published in predatory journals, and systematic review articles.

The selected articles were examined independently by three researchers. Data on each ar-

ticle’s characteristics (author, country, year, program type, sample size, intervention, control, and outcome) and reported results were extracted. The articles were assessed using the Joanna Briggs Institute Critical Appraisal Checklist (Munn, 2020). The items used were: Q1) clearly defined criteria for inclusion, Q2) detailed description of study subjects and setting, Q3) valid and reliable measurement of exposure, Q4) standard criteria used for measurement of condition, Q5) confounding variables identified, Q6) strategies to deal with confounding variables, Q7) valid and reliable measurement of outcomes, and Q8) appropriate statistical analysis used. A total of seven articles were selected for review.

## Results

**Description of Studies.** The literature search re-

turned 15,986 articles. Among these articles, 14,187 were obtained from ProQuest, 1,233 were obtained from Science Direct, 400 were obtained from Scopus, and 166 were obtained from Web of Science. As shown in Figure 1, seven articles were selected for analysis. These articles were published between 2020 and 2022, and all the described studies were RCTs. The research described in the articles was conducted in several countries, namely Colombia (Gómez-Lugo et al., 2022), Indonesia (Herdiman et al., 2022), Norway (Hegdahl et al., 2022), Peru (Perez-Lu et al., 2022), Tanzania (Millanzi et al., 2022), the USA (Bourdeau et al., 2021), and Zambia (Austrian et al., 2020). The participants in the selected studies were all adolescents, and one study involved adolescents and their parents or guardians (Bourdeau et al., 2021). Four of the studies were conducted in school settings (Gómez-Lugo et al., 2022; Hegdahl et al., 2022;

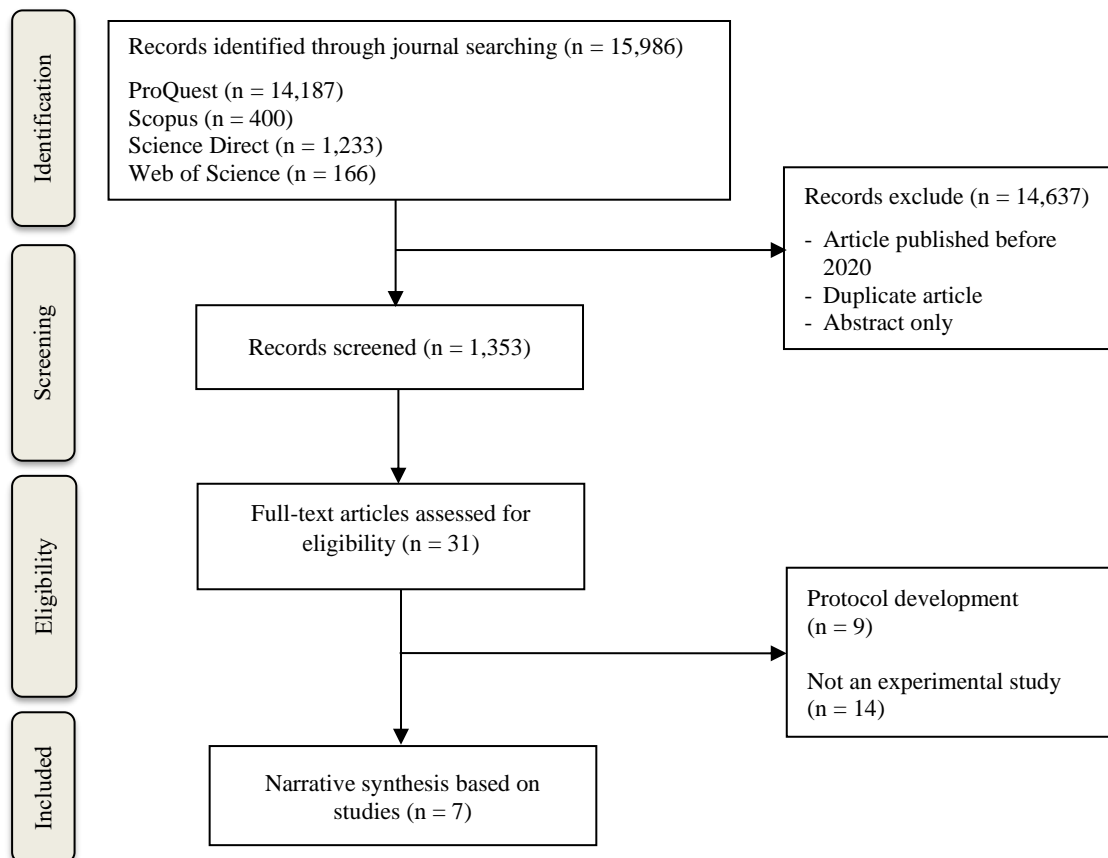


Figure 1. Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) Flowchart for The Study Selection Process

Table 1. Summary of the Articles and Associated Studies Examined in This Review

Author & Country	Program Type	Sample	Intervention	Control	Outcome	Quality Assessment
Millanzi et al. (2022) Tanzania	Skills-based intervention	N = 647 - Pure problem-based pedagogy (PBP) group (N = 142 adolescents) - Hybrid PBP group (N = 188 adolescents) - Lecture-based pedagogy (LBP) group (N = 317)	Arm 1 = pure problem-based pedagogy (PBP). Arm 2 = hybrid PBP.	Arm 3 = LBP	A considerable intention to refrain from sexual activity, postpone relationships, negotiate the use of condoms, and resist sexual coercions was shown by individuals with improved soft skills for safe sexual behavior.	Q1: Yes Q2: Yes Q3: Yes Q4: Yes Q5: Yes Q6: Yes Q7: Yes Q8: Yes
Gómez-Lugo et al. (2022) Colombia	Skills-based intervention	N = 2,047 - Intervention group (N = 891) - Control group (N = 1,156)	Competencies for Adolescents with a Healthy Sexuality (COMPAS). Educating about sexual and reproductive health.	No intervention	Lowering of the mediating and behavioral factors linked to sexual risk reduction.	Q1: Yes Q2: Yes Q3: Yes Q4: Yes Q5: Unclear Q6: Unclear Q7: Yes Q8: Yes
Bourdeau et al. (2021) USA	Education	N = 411 - Intervention group (N = 206) - Control group (N = 205)	Smart Choices 4 Teens - Acknowledging how difficult parent-adolescent communication is about relationships and sexuality. - Reflecting on a healthy relationship and signs of emotional and verbal abuse. - Sex expectations, responsible use of social media, and the ability to resist unwanted health effects (e.g., pregnancy and sexually transmitted infections, and values and guidelines.	Not mentioned	Long-term increase in the quantity of sexual communication between parents and adolescents.	Q1: Yes Q2: Yes Q3: Yes Q4: Yes Q5: Yes Q6: Unclear Q7: Yes Q8: Yes

Table 1. Summary of the Articles and Associated Studies Examined in This Review

Author & Country	Program Type	Sample	Intervention	Control	Outcome	Quality Assessment
Austrian et al. (2020) Zambia	Empowerment	N = 4661 - 120 intervention clusters (N = 3,515 girls) - 40 control clusters (N = 1,146 girls)	Adolescent Girls Empowerment Program (AGEP) - Arm 1 = weekly meetings alone, plus the added effect of the “add-on components”. - Arm 2 = weekly meeting and health voucher. - Arm 3 = weekly meeting, health voucher and the savings account.	No interventions offered	Impact on understanding of sexual and reproductive health, financial literacy, saving behavior, self-efficacy, and transactional sex is modestly good.	Q1: Yes Q2: Yes Q3: Yes Q4: Yes Q5: Yes Q6: Unclear Q7: Yes Q8: Yes
Perez-Lu et al. (2022) Peru	Education	Contraception myths and misconceptions index score (N = 469) - Arm 1 (N = 28) - Arm 2 (N = 213) - Arm 3 (N = 228)  Retention outcome (N = 428) - Arm 1 (N = 28) - Arm 2 (N = 213) - Arm 3 (N = 228)	ARMADILLO SMS  Arm 1 = on-demand information about sexual reproductive health.  Arm 2 = SMS-delivered with content related to seven sexual and reproductive health domains or topics.	Arm 3 = Received routine care,	Significant effect on participant’s knowledge of contraception	Q1: Yes Q2: Yes Q3: Yes Q4: Yes Q5: Yes Q6: Yes Q7: Yes Q8: Yes
Hegdahl et al. (2022) Norway	Skills-based intervention	Control group (N = 999 girls)  Economic support group (N = 2004 girls)  Combined support group (N = 1919 girls)	Economic support  Combined support: Economic support and received training in life skills with the objective of improving students’ capacity.	Standard school and health services	Can be enhanced by skills-based intervention.	Q1: Yes Q2: Yes Q3: Yes Q4: Yes Q5: Yes Q6: Yes Q7: Yes Q8: Yes
Herdiman &	Motivational Interviewing (MI)	Intervention group (N = 78)	Therapists videotaped all MI sessions and meet	No treatment	Significant effect between of MI on	Q1: Yes Q2: Yes Q3: Yes

Table 1. Summary of the Articles and Associated Studies Examined in This Review

Author & Country	Program Type	Sample	Intervention	Control	Outcome	Quality Assessment
Lindayani (2022) Indonesia		Control group (N = 78)	for supervision every other week to review the recordings and talk about any implementation concerns that had arisen.		awareness of and behavior toward HIV prevention.	Q4: Yes Q5: Yes Q6: Unclear Q7: Yes Q8: Yes

Herdiman et al., 2022; Millanzi et al., 2022), two studies were technology based (web-based and SMS) (Bourdeau et al., 2021; Perez-Lu et al., 2022), and one study was conducted in a community setting (Austrian et al., 2020).

**Programs and Interventions.** Several types of programs were examined in the selected articles. The programs and interventions were variously based on educating participants, motivational interviewing (MI), counseling, providing emotional support, skill development, and empowering participants. Two studies used education-based interventions (Bourdeau et al., 2021; Perez-Lu et al., 2022), and one study used MI (Herdiman et al., 2022). Four studies used interventions that were designed to develop the skills of participants (Gómez-Lugo et al., 2022; Hegdahl et al., 2022; Millanzi et al., 2022). One study focused on empowering participants (Austrian et al., 2020).

**Outcomes of the Studies.** The outcomes of the studies described in the seven selected articles included increased abstinence, safer sexual behavior (condom use), increased self-efficacy, more self-awareness skills related to sexual risk, increased knowledge, more frequent sexual communication, HIV prevention, and improved sexual and reproductive health. One study focused on promoting abstinence among young men and having one partner, delaying sexual interactions, negotiating condom use, and resisting sexual coercion (Millanzi et al.,

2022). Another study focused on increasing the amount of communication between parents and adolescents about sexual health in the long term (Bourdeau et al., 2021). Knowledge of sexual and reproductive health, financial literacy, saving behavior, self-efficacy, and transactional sex were the tested outcomes in two studies (Austrian et al., 2020; Perez-Lu et al., 2022). In addition, enhancing sexual and reproductive health and HIV prevention behaviors among adolescent girls were the targeted outcomes in three studies (Gómez-Lugo et al., 2022; Hegdahl et al., 2022; Herdiman et al., 2022). The search outcome in this study is shown in Table 1.

## Discussion

This review was conducted to provide an overview of the interventions that have been used to reduce the incidence of premarital sexual behavior among adolescents and to identify the implications for nursing practice. Seven articles were found that met the inclusion criteria, and these articles described studies that tested a range of interventions and that varied in terms of the number of participants and their outcomes. Interventions were based on educating participants, MI, skill development, and empowering participants.

Education is a key component of strategies designed to reduce the incidence of premarital sexual behavior. Bourdeau et al. (2021) showed that using technology to provide parents and

adolescents with educational material about relationships and sexuality and then about intelligent decision-making and sex expectations increased the frequency of parent–adolescent sexual communication but did not reduce the frequency of courtship or delay sexual behavior.

It has been shown that communication between parents and adolescents about sexuality alone is not enough; it must be combined with supervision and implementation of appropriate parenting patterns that help adolescents develop self-control and self-defense skills that they can utilize when they receive offers to engage in premarital sexual behavior (Bourdeau et al., 2021). Sometimes teenagers promise their parents that they will not engage in such behavior; however, when parents give them leeway in their relationships, there is a risk of premarital sexual behavior (Bourdeau et al., 2021). In the study conducted by Perez-Lu et al. (2022), providing participants with educational material about sexual reproductive health via SMS affected their misperceptions about sexual reproductive health, but the effect was small. According to our analysis, in the digitalization era, while education via SMS has had a small impact on reducing incidents of premarital sexual behavior, it is necessary to examine the media used to deliver information to adolescents about premarital sexual behavior because adolescents are more interested in accessing such information via websites and social media platforms (e.g., WhatsApp, Instagram, and Facebook). It is hoped that programs will be developed in the future that provide educational material via social media platforms that is attractive and not perceived as boring by adolescents.

From the results of two studies (Bourdeau et al., 2021; Perez-Lu et al., 2022), it can be concluded that education can increase knowledge, sexual abstinence, and the frequency of parent–adolescent communication and that it is more effective to provide information directly to adolescents rather than to tell them to study information independently using technology. Using a direct approach can allow adolescents

to ask and further explore any questions they may have about the constraints or problems they face in preventing premarital sexual behavior. Utilizing technology-based educational methods can result in a lack of enthusiasm among young people toward participating in programs because they may not trust information providers they have not met. In addition, according to the technology-based study (Perez-Lu et al., 2022) and parent–adolescent communication (Bourdeau et al., 2021) increased knowledge, sexual abstinence, and the frequency of parent–adolescent communication after the intervention; however, sexual behavior was not delayed. Nevertheless, it is a positive outcome when parent–adolescent communication increases, because the more that parents talk and provide guidance, the greater the chance that sexual behavior will be reduced, provided that the parents also listen and provide appropriate information. According to Bleakley et al. (2018), frequent parent–adolescent communication is strongly associated with adolescents practicing safer sexual behaviors, regardless of the subjects discussed or other factors.

MI is a rarely used intervention technique that is attracting increasing interest among researchers. In the study conducted by Herdiman et al. (2022), it was found that adolescents who attended four MI sessions had increased awareness of and behavior toward HIV prevention. In Herdiman et al.'s (2022) study, the MI sessions were conducted in an open, strength-based, affirming, non-judgmental, and compassionate manner. The findings of their study indicate that participating in MI sessions can increase sexual abstinence among adolescents. It is hoped that counseling and MI can be combined in future programs, as this would allow an initial examination of the problems or obstacles experienced by teenagers that prevent them from practicing premarital sexual behavior and motivation to be subsequently provided that is in accordance with the needs of the adolescent.

Other studies examined the effect of skills development on reducing premarital sexual beha-

avior. Millanzi et al. (2022) analyzed the effect of providing groups of five to eight adolescents with problem-based pedagogy and reproductive health lesson materials. The participants demonstrated enhanced soft skills for safe sexual behavior and clear intentions to avoid sexual activity, postpone relationships, negotiate the use of condoms, and resist sexual activity after being given at least 30 minutes to explore and identify potential solutions. Gómez-Lugo et al. (2022) found that holding conversations with the project coordinator after each training session to clarify information and address questions reduced mediating and behavioral variables related to sexual risk reduction. Hegdahl et al. (2022) found that adolescents who received financial assistance and instruction in life skills with the intention of improving their capacity to withstand peer pressure, resolve problems, create goals, and make decisions experienced an improvement in their sexual and reproductive health. Hence, to prevent premarital sexual behavior, skill-based interventions that strengthen the ability to behave appropriately under pressure and reduce the fear of being dumped by a girlfriend and of discussing relationships and sexual relations with parents should be implemented. Such interventions may be more attractive to adolescents because they can be tailored to address the problems experienced by each adolescent. It is hoped that in the future, Indonesian adolescents can be provided with financial assistance so that economic deprivation does not lead to them having premarital sexual relations. It is also hoped that additional funding will be provided in the future to support interventions performed by nurses in the form of education, counseling, providing motivation, and improving skills.

One of the examined articles described an intervention that was designed to empower adolescent girls: Austrian et al. (2020) studied the Adolescent Girls Empowerment Program (AGEP). The intervention involved attending a weekly gathering of girls that was sponsored by a female mentor in the area. The mentors ranged in age from 20 to 35 years and were

chosen through an interview-based process. They participated in a 10-day introductory training program on mentoring techniques and content, a five-day refresher training program midway through the intervention, and monthly supervision meetings with the program administrators. The participants attended sessions on HIV, life skills, financial literacy, and sexual and reproductive health. They were assigned to groups that were stratified based on age and marital status. Early research on the AGEP revealed that these gatherings of girls, led by female mentors, included conversations on sexual and reproductive health, life skills, and economic empowerment and that the weekly meetings (also known as “safe spaces”) were the cornerstone of the AGEP (Austrian et al., 2020). The findings of Hewett et al. (2017) showed that participating in the program reduced the attendees’ vulnerability and allowed them to take advantage of opportunities to improve their long-term outcomes in terms of health, fertility, and education, which were aims of this program (it was designed to empower teenage girls by strengthening their social, health, and economic assets). Empowerment program was more complete than only education, skills-based intervention and motivational-interviewing which consisted of providing education, skills, and economic support to empower girls to prevent premarital sexual behavior. However, a mentor of the AGEP was that the participants were girls and that the mentors were 20–35 years old. It is hoped that further research will be conducted to examine the effect of participating in the AGEP on adolescents aged 10–19 years, which is the World Health Organization’s (2018) age classification for adolescents.

The findings of this review have implications for nursing practice in terms of the creation and implementation of programs designed to reduce the prevalence of premarital sexual behavior among adolescents. The findings indicate that such programs should include a combination of different types of interventions based on education, MI, skill development, and empower-



ment delivered via social media platforms. The findings also suggest that the Indonesian government should provide financial assistance to adolescents to reduce the risk of them engaging in premarital sexual behavior due to economic factors.

This review has some limitations. First, the search for original articles was limited to those published within a three-year period (2020–2022). Second, the search was limited to original articles published in English. Thus, potentially relevant, high-quality articles published before 2020 or after 2022 were excluded. Future studies are needed to explore programs that involve counseling and empowerment, as research in this area has shown that counseling and empowerment can significantly reduce the incidence of premarital sexuality in adolescents.

## Conclusion

Despite multiple attempts by the government to lower the prevalence of premarital sexual behavior, teenagers are more likely to engage in such activities today than ever before. The findings of this review indicate that programs delivered via social media platforms that equip adolescents with skills, a sense of empowerment, motivation, and information may be effective, and this has implications for nursing practice. Our findings can serve as a foundation for developing standard operating procedures for implementing programs to lower the prevalence of premarital sexual behavior among adolescents. Governmental financial support is also an important factor in lowering the likelihood of adolescents engaging in premarital sexual activity because of financial concerns.

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