

The effectiveness of educational interventions about contraception in adolescence: a systematic review of the literature

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ABSTRACT

The aim was to investigate the effectiveness of educational interventions about contraception in adolescence. Searches were conducted in the databases Latin American and Caribbean Center on Health Sciences Information (LILACS), Cumulative Index to Nursing & Allied Health Literature (CINAHL), Web of Science and in the National Library of Medicine (Pubmed/Medline). The inclusion criteria were followed: studies assessing the effectiveness of educational interventions about contraception in adolescence, fully available, in the languages Portuguese, English, and Spanish. Observing the eligibility criteria, eight papers composed the sample. There were different educational interventions about contraception in adolescence used in diverse contexts and scenarios, where the interventions were effective, promoting changes in the knowledge and/or attitudes; thus showing self-efficacy for prevention of pregnancy and sexually transmitted diseases. Therefore, the educational interventions were effective to promote sexual and reproductive health in adolescents.

Descriptors: Health Education; Adolescent; Contraception; Pediatric Nursing.

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INTRODUCTION

Adolescence can be defined as a period of physical, psychological and social maturation that marks the passage of the childhood to adulthood, chronologically delimited by the World Health Organization (WHO) as the age group between 10 and 19 years⁽¹⁾.

Adolescents have their peculiarities in their psychoemotional development, as the omnipotence and desire to experience new situations and, therefore, tend to adopt risky behaviors, becoming more vulnerable⁽²⁾. The sexuality awakening arises as a psychological and social phenomenon strongly influenced by personal and family beliefs and, moral, social norms⁽³⁾. The sexual initiation, many times, occurs early and it is associated to the lack of or incorrect use of contraceptive methods, with risks for sexually transmitted diseases (STD) and use of alcohol and other drugs; being the unplanned pregnancy one of its most significant consequences, according to the findings of the last National Survey of School Health (PeNSE), conducted in 2015⁽⁴⁾.

The PeNSE, developed by the Brazilian Institute of Geography and Statistics (IBGE) in partnership with the Health Ministry, investigated the health risk and protection factors of adolescents and found that more than 25% of students of 13 and 15 years old and more than 50% of students of 16 and 17 years old had initiated sexual life. Regarding pregnancy occurrence and considering only the percentage of girls that had sexual intercourse, 9% became pregnant at least once, predominantly girls from public schools (9.4%) and the Northeast region of the country (13.3%)⁽⁴⁾. The adolescent pregnancy occurrence, therefore, configures a social and public health issue, once it can become a risk for the biopsychosocial development of the adolescent, as well as for the baby development, with social, economic and family repercussions⁽⁵⁾.

In this context, health educational practices have been needed, as they stimulate the active participation of subjects, encouraging their autonomy and protagonism in the decisions to obtain good actions for the sexual and reproductive health, which can be mediated by a broad diversity of techniques and materials⁽⁶⁾. Nevertheless, the follow-up and orientation are fundamental, with broad participation of the family, school, health institutions and community, as ways to shape opinions⁽⁷⁾.

Many studies have demonstrated the conduction of educational interventions designated to sexual and reproductive health promotion for the adolescent public^(2,8-10). Although adolescents recognize the occurrence of sexuality educational practices, 56% of these assessed interventions as unsatisfactory⁽⁷⁾. Therefore, there is a need for investments in participative actions and with technological resources that can stimulate the interest and participation of this public.

Besides, it is essential to follow Evidence-Based Practices (EBP) that will answer a question elucidated in the clinical practice, providing aids for a safe-conduct, with quality and low-cost⁽¹¹⁾. In this perspective, a systematic review was conducted with the following aim: to investigate the effectiveness of educational interventions developed about contraception during adolescence.

METHODS

A study oriented by the systematic review of the literature that identifies selects and critically assesses relevant studies about a theme in question, through systematic and explicit methods, that can use or not statistical methods (meta-analysis) to summarize their results⁽¹²⁾. The operationalization followed the seven steps

established by the Cochrane Collaboration, described as follows: 1) formulation of the question, 2) identification and selection of studies, 3) critical assessment of the studies, 4) data collection, 5) data analysis and presentation, 6) data interpretation and 7) improvement and update of the review⁽¹³⁾.

The PICO strategy was followed to formulate the question, where: **P**articipants = adolescents, **I**ntervention = educational practice about contraception, **C**omparison = standard intervention or no intervention and **O**utcomes = increase of knowledge about contraception during adolescence. Therefore, the following question guided the study: What is the effectiveness of educational interventions about contraception in adolescence? The PICO acronym helps the correct definition of the necessary evidence for the research and avoids unnecessary searches⁽¹⁴⁾.

To elucidate the guiding question, a search was conducted during September to October 2017 in the databases Latin American and Caribbean Center on Health Sciences Information (LILACS), Cumulative Index to Nursing & Allied Health Literature (CINAHL), Web of Science and in the National Library of Medicine (Pubmed/Medline). The following controlled descriptors were used and crossed with the boolean operator AND: Health/*Saúde* Education/*Educação*, Contraception/*Contracepção*, and Adolescent/*Adolescente*, according to the classification of Health Sciences Descriptors (DeCS) and the Medical Subject Headings (MeSH/PubMed).

The selection of studies obeyed the inclusion criteria: studies that assessed the effectiveness/efficacy of educational interventions about contraception in adolescence, available in full-text, in the languages Portuguese, English, and Spanish. The adopted exclusion criteria were: editorial publications, letters to editors, books and/or book chapters, monographs, dissertations, theses, experience reports, case studies and review studies. The search for studies was not limited by a time period or year of publication, intended to broaden the largest number of articles possible. The articles identified in more than one database were accounted only once.

The initial search resulted in 1,417 publications. After the exclusion of unavailable publications (1,163), the selection through the reading of titles and abstracts was conducted and, when necessary, the full-text reading, to observe if they met the guiding question and met the established criteria. After this rigorous assessment, the final sample was composed of eight studies. The Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) was used to explain the search and selection of publications, according to Figure 1⁽¹⁵⁾.

An adapted instrument was used to secure the relevance of the extracted data, as well as to minimize the risk of transcription errors and to guarantee the precision when checking the information⁽¹⁶⁾. The selected publications were classified in accordance with the levels of scientific evidence from the Collaborator Center of the Joanna Briggs Institute (JBI), as Level I: systematic review containing only randomized controlled trials; Level II: at least one randomized controlled trial; Level III 1: well-designed non-randomized controlled clinical trials; Level III 2: well-designed cohort studies, or case-control, analytical studies, preferably from more than one research center; Level III 3: multiple temporal series, with or without intervention and results of non-controlled experiments; and Level IV: statements of respected authorities, based on clinical criteria or experience, descriptive studies or reports from committees composed by specialists⁽¹⁷⁾.

Additionally, to assess the methodological quality of studies, the Jadad's quality scale⁽¹⁸⁾ was applied, constituted of the three related items, with two response options: yes (1 point) or no (zero). The items 1 and 2 received an additional point in case the randomization method and masking were adequate (Chart 1). The scale

scoring varies from zero to five, and studies with a score lower than two were considered with bad methodological quality.

Figure 1: Flow diagram of the selection of studies.

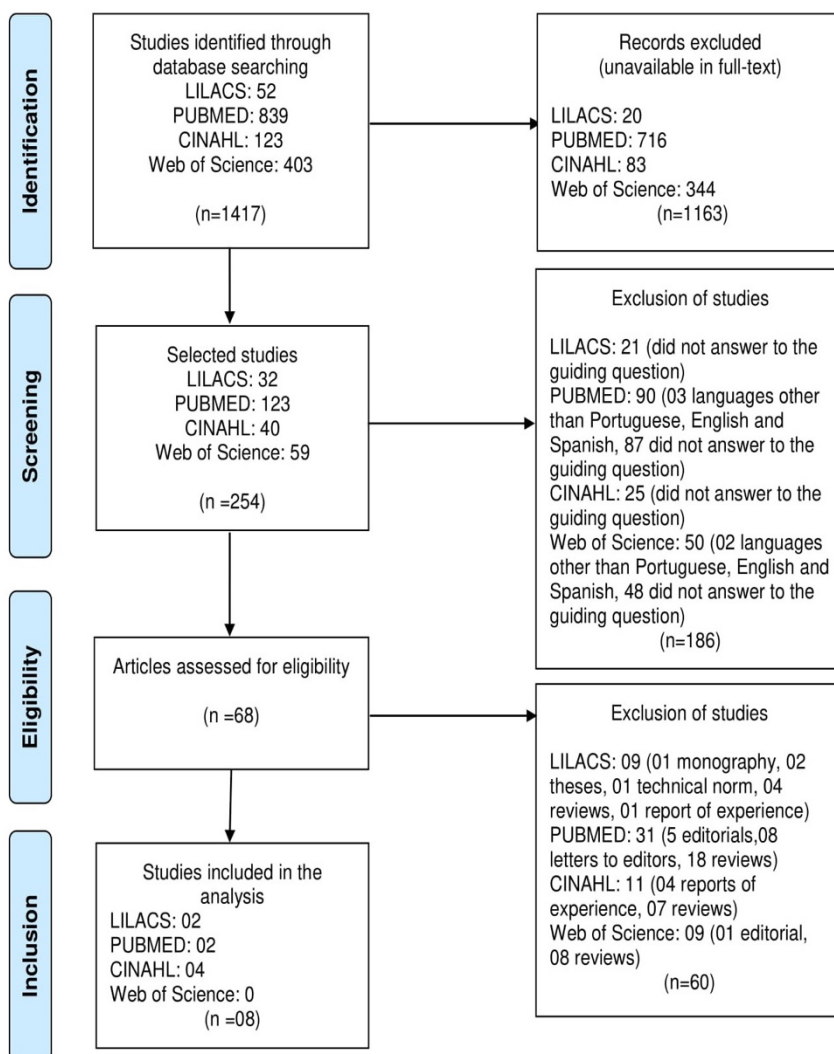


Chart 1: Methodological quality scale (Jadad *et al.*, 1996).

1. Was the study described as randomized (use of words as “random”, “randomized”, “randomization”)?
1a. Was the method of randomization appropriate?
2. Was the study described as double-blind?
2a. Was the method adequate?
3. Was there a description of withdrawals and exclusions?

RESULTS

Eight studies composed the sample from the selected studies about the theme which met the research question. The Chart 2 presents the synthesis of selected studies, according to authorship, year, country, evidence level, Jadad scale⁽¹⁸⁾, objectives, type of study, intervention, sample and, results.

Regarding the characterization of articles, within the selected studies, six (75%) were conducted in the Americas, and more than half of these in the United States of America (USA). The others were developed in the

African continent and in Europe. It was noted that no studies conducted in Brazil were included in the sample because they did not meet the established criteria.

Chart 2: Presentation of the sample according to authorship, year, country, evidence level, methodological quality, objectives, type of study/intervention, sample and, results. Fortaleza, CE, Brazil, 2017.

Authorship / Year / Country / Evidence level / Jadad Scale	Objectives	Type of study / Intervention	Sample	Results
Mora <i>et al.</i> / 2011 / Cuba / Evidence level: III 3 / Jadad Scale: 1	To improve adolescents' knowledge of sexuality aspects focused on contraceptive methods.	Intervention study / Educational intervention through 3 weekly meeting, using demonstrative audiovisual methods.	n = 62 Age: 11-19 years	The educational activity contributed to the knowledge improvement of contraception in adolescence.
Hernández <i>et al.</i> / 2010 / Cuba / Evidence level: III 3 / Jadad Scale: 2	To increase the knowledge level of contraception in adolescents from a secondary basic school.	Intervention study (randomized) / Educational intervention through four modules containing different participation techniques.	n = 136 Age: not reported (only adolescents)	The intervention showed the utility of the study with an increase in the knowledge level about contraception in 57.3% of adolescents.
Sieving <i>et al.</i> / 2012 / USA / Evidence level: II / Jadad Scale: 3	To examine risky sexual behaviors and psychosocial mediators after 12 months of intervention with the program Prime Time.	RCT / Prime Time program, consisting of an intervention combined with individual management of cases and peer-led education.	n = 239 (females) Age: 13-17 years	The intervention group reported more consistent use of preservatives, hormonal contraception and combined contraceptive methods (double protection) in comparison to the control group.
Pérez <i>et al.</i> / 2005 / Spain / Evidence level: III 1 / Jadad Scale: 1	To evaluate the result of an educational intervention to prevent unwanted pregnancy and sexually transmitted infections (STI) in adolescents.	Quasi-experimental / The intervention was based in the organization of an advertisement contest (press, radio, and television) that were elaborated by the students and tutored by a teacher.	n = 197 Age: 14-18 years	After six months of intervention, there was a significant improvement in the knowledge of the preventive capacity of the preservative towards STI/AIDS (from 95.8% to 99.5%) and in the correct use of preservatives (from 62.1% to 73.5%).
Gaughran M, Asgary R. / 2014 / Kenya / Evidence level: III 3 / Jadad Scale: 1	To assess the efficacy of a broad curriculum about reproductive health focused on the prevention of STI and pregnancy during adolescence.	Intervention study / Implementation of a reproductive health curriculum of 6 weeks that included didactic sessions, educational games, and open discussions.	n = 42 (females) Age: 13-19 years	Improvement in the educational domains was observed: HIV/AIDS knowledge (from 85% to 94%), knowledge about pregnancy in adolescence and STI (from 57% to 82%) and general knowledge score, attitude, and efficacy (from 81% to 90%).
Zimmerman <i>et al.</i> / 2008 / USA / Evidence level: III 1 / Jadad Scale: 2	To assess if adapting a successful curriculum improves the efficacy of adolescents in the promotion of safe sexual behaviors to prevent pregnancy and STI.	Quasi-experimental / Two interventions: Scholar curriculum and reduction of original and modified risk.	n = 1.944 Ages: 13-19 years	The analyses revealed no significant statistical difference between the curriculum groups in any of the variables of the study. However, the results suggest that students from the modified curriculum were less likely to start a sexual life at ninth grade.

Authorship / Year / Country / Evidence level / Jadad Scale	Objectives	Type of study / Intervention	Sample	Results
Barnet <i>et al.</i> / 2009 / USA / Evidence level: II / Jadad Scale: 3	To assess the efficacy of Computer-assisted motivational intervention assisted by computer (CAMI) in the prevention of rapid repetition of births in adolescent mothers.	RCT / Computer-assisted motivational intervention (CAMI)	n = 235 (females) Ages: 12-19 years.	To receive 2 or more CAMI sessions, alone or within a home-based intervention, reduced the risk of re-incident births in adolescent mothers.
O'Donnell <i>et al.</i> / 1999 / USA / Evidence level: II / Jadad Scale: 3	To assess the efficacy of a program that includes a scholar curriculum to reach health associated with community service for youth for the reduction of risky sexual behaviors among adolescents.	RCT / Two interventions: modified scholar curriculum to reach health and the modified curriculum associated with community service for youth, that provided experiences to students in services that attend the community, exploring their social skills and behaviors.	n = 1,061 Age: 12 e 13 years (adolescents of 7 th and 8 th grades).	The results showed a reduction of 15.9% in the occurrence of sex without preservative and 8.4% of sex without birth control (use of other contraceptives) in the intervention group that received a modified curriculum associated to the community service for youth, while there was a discrete increase in both indicators in the control group.

Regarding the methodological design of the study, more than half of the studies had a research design with high evidence levels, consisting of experimental studies (RCT) and quasi-experimental. Regarding the methodological assessment, according to the Jadad scale⁽¹⁸⁾, only three studies (37.5%) were classified as low methodological quality.

The sample size of the included studies varied from 45 to 1,944 participants, adding to a total of 3,916 studied people. In regards to participants' age, it varied from 10 to 19 years, which chronologically characterizes adolescents, according to the WHO. Also, three studies were conducted with only female adolescents.

DISCUSSION

The health education when allow sharing knowledge of the promotion of sexual and reproductive health of adolescents, tends to obtain a positive impact in the change of risky behaviors, avoiding losses to the physical and emotional integrity, and the social conviviality of this population⁽⁷⁾. The most substantial part of the included studies had this objective, aiming to assess if the results of educational interventions reached the goal with improvements to the studied adolescent population.

Thus, the results show that many types of interventions have been used in the health education practices designed to adolescents, as well as, distinct ways to assess them. Within the studies, three conducted educational interventions divided into group sessions, including different participation techniques, as lectures, audiovisual approaches, games, within others⁽¹⁹⁻²¹⁾. Another study led interventions through advertisement campaigns using the resources: radio, TV, printed media and distribution of materials⁽²²⁾.

It is a consensus in the literature that the educational practices during adolescent should be dynamic and interactive, through participative methodologies, to allow adolescents' communication and expression and, as a consequence, a higher efficacy in the teaching-learning process^(2,23-24).

Studies assessing knowledge of adolescents related to contraceptive methods already indicated some analysis parameters. One of them⁽¹⁹⁾ showed that the most known methods before the intervention were the masculine preservative, the oral birth control pill, and the intrauterine device (IUD) and after the intervention, adolescents knew beyond these, the injectable birth control (100%) and other methods (27.4%)⁽¹⁹⁾. The other study⁽²⁰⁾ classified the adolescents' knowledge in three stages (good, regular and poor), revealing an increase of 47% in the category good knowledge, but it was not specified which knowledge topics were assessed in the assessment instrument.

On the other hand, researchers⁽²¹⁾ analyzed beyond knowledge, the attitudes and self-efficacy of adolescents in the use of contraceptive, showing, after the six-weeks intervention, an increase of 9% in HIV/AIDS knowledge and of 25% about the remaining STI and adolescent pregnancy, as well as, a 9% increase in the scoring of the general knowledge, attitude and self-efficacy⁽²¹⁾. The self-efficacy concept has been well used in the health research, as it related to a belief that can be modified and encouraged in health promotion and education actions, with the intention to provide beyond knowledge, the capacity and safety to keep healthy living behaviors and habits as routine⁽²⁵⁻²⁶⁾.

A quasi-experiment conducted in Spain analyzed the knowledge of scholar adolescents about the male preservative and its correct use after a contest of advertisement messages, through the press, radio and television, obtaining a significant increase of 95.8% to 99.5% in the knowledge about the preventive ability of the preservative and a rise of 62.1% to 73.5% in its correct use⁽²²⁾.

It is observed in studies, that even with few limitations, they presented an effect over the knowledge and attitude with possible improvement in the STI prevention in adolescents. For example, a study addressing the implementation of community programs include peer-led education in the socio-cultural context where adolescents are inserted, revealing a more consisted use of preservatives, hormonal anti-conceptual and double protection in the intervention group, without significant effect in the decrease of the number of sexual partners⁽²⁷⁾. Research bringing peer-led educational interventions for sexual and reproductive health are increasingly reported in the literature, as they favor the exchange of knowledge and experiences between people of the same age group and social context, stimulating the youth protagonism and socialization of knowledge⁽²⁸⁻²⁹⁾.

In addition, among the studies that conducted educational interventions through the inclusion of modified school curriculums about sexual and reproductive health⁽³⁰⁻³¹⁾, the first showed little significant results in regards to the changes in knowledge, attitudes, behaviors and self-efficacy of adolescents⁽³⁰⁾, while in the second, there was a decrease in the intervention group from 15.9% and 8.4% in the occurrence of sex without preservatives and an increase of 3% to 9% for the same indicators for the control group⁽³¹⁾.

Although the Brazilian educational policies recommend the cross-sectional discussion about sexuality in teaching institutions, by the inclusion of the theme in school curriculums, controversies are observed between the ideal and the real, possibly motivated by the teachers' lack of experience and training about the topic. Thus,

there is a need to expand sexual and reproductive health promotion actions of scholar adolescents, through partnerships between schools, universities and health professionals⁽³²⁻³³⁾.

At last, the last study conducted a computer-assisted intervention, aggregating a hard technology to the educational care. It was the only study conducted with adolescent mothers, aiming to prevent the recurrence of pregnancy in this population. The results show that adolescents who participated in the computer-assisted motivational intervention (CAMI) associated to the home-based intervention presented a significant lower risk (13.8%) of a subsequent birth than the ones who received only the CAMI (17.2%) and the ones who did not receive any intervention (control group) (25%)⁽³⁴⁾.

Research demonstrates the use of technologies in the educational practice contributes to intensifying the adoption of healthier life habits, being considered at the same time, process and product. Thus, it is of great importance to assess and validate these instruments⁽³⁵⁾.

The interventions were conducted in the most diverse scenarios, as schools^(20,22,27,30-31), community clinics^(19,27), non-governmental organizations⁽²¹⁾ and at home⁽³⁴⁾.

In a systematic review that analyzed the efficacy of sexual education interventions at schools, which studies were published between 2008 and 2010, there was a significant increase in knowledge, attitudes, and behaviors of adolescents in more than 80% of the sample, showing the relevance of the action in this scenario⁽³⁶⁾.

Almost all analyzed studies (87.5%) assessed the effectiveness of educational interventions through questionnaires applied in at least two moments, before and after the intervention. But the intervention duration greatly varied between studies, from four weeks to three years. The long-term evaluations allow a more consistent analysis of behavior change besides the acquired knowledge.

Therefore, heterogeneity in the sample was noted in regards to the type of intervention, the setting, the duration time and the analyzed outcomes. Besides the challenges in comparing the study findings among themselves due to heterogeneity, all had some positive effect in their results, characterizing the effectiveness of educational interventions, with the exception of one investigation⁽³⁰⁾.

Thus, through the implementation of educational strategies and following assessment of its efficacy, it is possible to change the paradigms in the educational process for health, increasingly requiring creativity and audacity from professionals, to adopt innovative instruments allowing to effectively reach the target-population, providing reflexion and change in practice⁽³⁷⁾.

CONCLUSION

Based on the results found, it is possible to notice that health researchers have been using various educational strategies to promote sexual and reproductive health in adolescents, including diverse participative methodologies. The effectiveness of these interventions was assessed in many ways, essentially measuring the improvement of knowledge and/or changes in attitudes and risky behaviors, therefore providing possibilities to prevent early pregnancy and STI. The majority of studies showed positive effects of educational interventions about contraception in adolescence.

As a limitation, there was a difficulty to compare results among themselves, due to the diversity of interventions, as well as, the outcomes measured to characterize the effectiveness of these. Besides, the sample

was heterogeneous in regards to the socio-cultural context in which the interventions were implemented, including studies developed in countries in the Americas, Europe, and Africa; presenting significant geographical, cultural and socioeconomic differences, which can considerably interfere in the results. Nevertheless, as a conclusion, the educational interventions were effective to improve the knowledge and preventive competence with repercussions in the sexual health and prevention of pregnancy in adolescents.

The inexistence of publications from Brazil meeting the inclusion criteria of the sample was also a limitation, not allowing the analysis of results of interventions conducted in the national scenario and the comparison with other identified realities. Therefore, it is recommended to do studies of this nature in the country, as well as, the incorporation of new technologies and health-promoting educational strategies, due to the pertinence of analyzing interventions in our sociocultural and health context. Also noteworthy, is the need of research to assess not only the educational interventions but also the technological products used, so they can be incorporated in the clinical practice with the guarantee of its effectiveness in the educational process.

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