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Impact of an educational strategy designed to prevent pregnancy in adolescents in the southern area of Manabí

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Abstract

Introduction. Adolescent pregnancy is a persistent problem in rural areas of Ecuador, affecting the educational and social development of young people. Educational strategies have proven to be effective for its prevention. *Objective.* To evaluate the impact of a comprehensive educational strategy on adolescents in the southern zone of Manabí. *Method.* Quasi-experimental study with a pre-test/pos-test design and control group. A total of 283 students (140 males, 143 females) participated, with an average age of 16 years. The intervention included participatory sessions on sexual health, contraception and consent. *Results.* The intervention group showed significant improvements in knowledge about contraceptive methods (82%), pregnancy risks (76%), and sexual consent (68%). Self-efficacy for condom uses also increased (71%) and high satisfaction with the strategy was reported. *Conclusions.* The educational intervention was effective in strengthening key competencies for the prevention of adolescent pregnancy. Its institutionalization and cultural adaptation for vulnerable contexts is recommended.

Keywords: Pregnancy in Adolescence, Sexual Health, Educational Activities, Public Health.

Introduction

Adolescent pregnancy continues to be a critical public health challenge at the global level, especially in contexts of social and educational vulnerability such as southern Manabí, Ecuador. The consequences of early pregnancy include the interruption of the educational project, obstetric risks, intergenerational poverty, and social exclusion, affecting not only adolescents but also their families and communities (Raya-Diez et al., 2024). Faced with this problem, educational strategies have emerged as key interventions to promote informed decision-making, the development of psychosocial skills, and access to sexual and reproductive health services (Vasilenko et al., 2023).

In recent years, several Anglo-Saxon programs have shown that evidence-based interventions, implemented in school and community settings, can significantly reduce adolescent pregnancy rates. For example, the U.S. Department of Health and Human Services' Teen Pregnancy Prevention (TPP) program has funded educational models that integrate content on sexuality, healthy relationships, and risk prevention, with positive results in delaying sexual initiation and increasing contraceptive use (Laferriere et al., 2023). Likewise, a systematic review published in

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2024 by BMC Women's Health identified that school-based comprehensive sexuality education (CSE) improves contraceptive knowledge and self-efficacy, although gaps persist in the full implementation of international standards (Myat et al., 2024).

In Latin America, adolescent pregnancy continues to be a priority public health concern, with rates significantly higher than the global average. Recent studies have evaluated the effectiveness of comprehensive educational strategies, revealing important advances but also persistent challenges. A quasi-experimental study conducted in Ecuador observed a significant increase in knowledge about sexual and reproductive health, especially in the use of male condoms. 80% of students reported satisfaction with the information received, suggesting that structured education improves awareness and prevention (García Ruiz & Pérez Pons, 2023). Similarly, a comprehensive educational strategy applied to adolescents aged 10 to 19 years showed improvements in knowledge about contraceptive methods, sexual consent, and risks of early pregnancy (Guerrero Pachacama et al., 2025). The study highlighted that comprehensive sex education is key to promoting responsible sexual behaviors, although it requires continuity and cultural adaptation. An intersectional analysis of programs in Latin America identified that educational interventions could increase condom use, improve sexual assertiveness, and reduce early sexual initiation. However, there was evidence of limited incorporation of intersectional approaches, which affects effectiveness in diverse populations (Librado-González et al., 2024).

This evidence suggests that educational strategies must be culturally adapted, participatory, and sustained over time, incorporating emotional, social, and cognitive components that respond to local realities. In this sense, within the framework of the project of linkage with society called Educational Strategy for the Prevention of Adolescent Pregnancy in the Southern Zone of Manabí – Phase II, developed at the State University of the South of Manabí, the purpose of this research was to evaluate the impact of an educational strategy designed to prevent pregnancy in adolescents in the southern zone of Manabí, considering their sociocultural and educational particularities. This evaluation seeks to contribute to the design of contextualized and effective public policies that promote the comprehensive well-being of adolescents in Ecuador.

Method

This was quantitative research conducted through the quasi-experimental method with a non-equivalent control group. Complementary qualitative data were incorporated to explore perceptions and experiences during the intervention. The design corresponded to a pre-test – post-test with educational intervention in selected institutions.

Participants and sample

The population was made up of 1057 adolescents between 13 and 18 years old enrolled in educational institutions in the southern area of Manabí. The sample of 283 students was determined through the QuestionPro tool under a 95% confidence index (QuestionPro, 2022), and selected in a non-probabilistic way for convenience, considering criteria of accessibility, informed consent and territorial representativeness.

Intervention design

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8 face-to-face educational sessions were held, on a weekly basis, which lasted 60 minutes. The methodology was participatory with the support of audiovisual material and using the technique of group dynamics. The contents were oriented towards comprehensive sex education, adapted to the local context and included topics such as anatomy, contraception, consent, healthy relationships and life project. Professors and students from the School of Nursing of the State University of the South of Manabí functioned as facilitators.

Data collection

An instrument validated by experts in adolescent sexual health was used, with items on knowledge, attitudes and practices in sexual and reproductive health. A semi-structured interview script was structured to collect – through focus groups – students' and teachers' perceptions of the intervention.

Data Procedure and Analysis

The pre-test was applied in the intervention and control groups, after which the educational strategy was implemented in the intervention group and finally the post-test was applied in both groups. Focus groups were conducted to which a semi-structured interview was applied. Quantitative data were analyzed through descriptive and inferential statistics. A thematic content analysis of the transcripts of the interviews was conducted.

Ethical considerations

The ethical aspects of this research were reviewed, endorsed and signed with a 1722874647 code by the Human Research Ethics Committee of the Portoviejo Higher University Institute. Informed consent was requested from participants and informed consent approval was required from parents or legal guardians.

Results

Characterization of the participants

As shown in Table 1, the sample consisted of 283 adolescent students, of which 140 were men (49.5%) and 143 women (50.5%), with a mean age of 16 years. 63% of the participants lived in rural areas, and most belonged to the lower middle socioeconomic stratum, which reflects the conditions of educational and social vulnerability in the southern area of Manabí.

Table 1. Characterization of the participants

Variable	Category	n	%
Sex	Male	140	49.5
	Female	143	50.5
Age	Media	-	16 years
Residence	Rural	178	63.0
	Urban	105	37.0
Socioeconomic status	Medium Low	283	100

Authors, 2025

The comparison of knowledge and attitudes before and after the educational intervention is presented in Table 2.

Knowledge about sexual and reproductive health (Pretest)

Before the educational intervention, a low level of general knowledge was observed. Only 38% correctly identified modern contraceptive methods. 27% recognized the risks of teenage pregnancy. 19% understood the concept of sexual consent. No significant differences were found between men and women in the initial level of knowledge ($p > 0.05$).

Impact of the educational strategy (Postest)

After the implementation of the educational strategy, significant improvements were evidenced in the intervention group. 82% correctly identified at least three contraceptive methods, compared to 41% in the control group ($p < 0.001$). 76% recognized the risks of adolescent pregnancy, compared to 35% of the control group ($p < 0.001$). 68% understood the concept of sexual consent, compared to 29% in the control group ($p < 0.001$). In addition, an increase in self-efficacy for condom use was observed, especially among rural women ($p < 0.05$), suggesting that the strategy was effective in strengthening practical and reflective skills.

Table 2. Comparison of knowledge and attitudes before and after the educational intervention

Indicator	Group	Pretest (%)	Post-test (%)	p-value	Interpretation
Knowledge about contraceptive methods	Intervention	39	82	< 0.001	Significant improvement after the educational strategy
	Control	37	41	-	No relevant changes
Recognizing Pregnancy Risks	Intervention	33	76	< 0.001	Increased knowledge in the intervention group
	Control	30	35	-	Marginal improvement
Understanding Sexual Consent	Intervention	21	68	< 0.001	Greater understanding in the intervention group
	Control	18	29	-	Slight increase

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Self-efficacy in condom use	Intervention	42	71	< 0.05	Notable increase, especially in rural women
	Control	40	44	-	

Authors, 2025

Qualitative insights

Semi-structured interviews revealed that students rated the strategy's participatory and emotional approach positively. For example:

"Now I know that I have the right to decide about my body," said a 17-year-old student.

Teachers stressed that the intervention generated spaces for dialogue that did not exist before, especially in rural areas where the subject is usually taboo.

Discussion

The results of this research show that the educational strategy implemented in adolescents in the southern area of Manabí had a significant impact on the strengthening of knowledge, attitudes and skills related to the prevention of adolescent pregnancy. These findings align with recent Anglo-Saxon scientific literature, which supports the effectiveness of structured, culturally relevant, and participatory educational interventions.

A study by BMC Women's Health (2024) identified that school-based comprehensive sexuality education (CSE) programs, while diverse in their implementation, tend to improve knowledge about contraception and sexual health, especially when they include multiple sessions, participatory methodologies, and content on consent, healthy relationships, and sexual rights (Myat et al., 2024). In this intervention, improved knowledge about contraceptive methods (from 39% to 82%) and understanding of sexual consent (from 21% to 68%) reflect these principles, demonstrating that even in rural contexts and with structural limitations, substantive progress is possible. Likewise, the study by Berlan et al. (2025), conducted in Ohio (USA), showed that the combination of sex education in schools and community partnerships managed to significantly reduce the rate of adolescent pregnancies, especially by increasing access to contraceptive methods and strengthening adolescent girls' self-efficacy for their use (Berlan et al., 2025). In this study, the increase in self-efficacy for condom use (from 42% to 71%) is a key indicator of empowerment, particularly among rural women, which coincides with the effects observed in community intervention contexts.

However, the review by Su Myat et al. (2024) also warns that many interventions do not fully comply with UNESCO's international guidelines on sexuality education, especially in terms of duration, thematic coverage, and teacher training (Myat et al., 2024). This finding invites us to reflect on the need to institutionalize and scale strategies like yours, ensuring their sustainability, quality, and alignment with global standards.

Finally, although the qualitative results reveal a high acceptance of the strategy by the students, there are also demands for greater continuity and thematic depth. This is in line with the systematic review by Castro-Benavides et al. (2023), which highlights the importance of sustained interventions over time to consolidate behavioral changes in adolescents (Castro-Benavides et al., 2023). Overall, the results of this research not only confirm the effectiveness of the educational strategy implemented, but also provide contextualized evidence from Latin America, contributing to the global debate on how to adapt and strengthen adolescent pregnancy prevention policies in rural and socially vulnerable contexts.

Impact of Adolescent Sexual Health Education Strategies

The results of your study in Manabí align with global trends that highlight the effectiveness of comprehensive educational strategies to prevent adolescent pregnancy, especially when they are adapted to specific sociocultural contexts and implemented with a participatory approach.

A systematic review published in 2023 looked at interventions in low- and high-income countries, concluding that skills-focused, peer-led, and interactive community-based programs are more effective than traditional informational approaches (Mohamed et al., 2023). In addition, it was observed that exposure to parental models and delaying sexual activity without educational accompaniment are not very effective. The book *Adolescent Pregnancy Prevention: Educational Strategies and Implementation in Public Health* highlights that the actual implementation of educational strategies must go beyond clinical trials, incorporating implementation science and ongoing evaluation to ensure sustainability and equity (Rodrigues et al., 2023).

In Thailand, an integrated review showed that multicomponent interventions that combine education, skills training, and community participation improve knowledge and attitudes, although consistency in condom use remains low (Thongkorn & Chaimongkol, 2019). In addition, it was identified that effectiveness decreases at 12–48 months if there is no continuous reinforcement. In Southeast Asia, reports from UNFPA and the World Economic Forum warn that less than 35% of adolescents receive sex education in school, and that lack of access to modern contraceptives and friendly services perpetuates teenage pregnancy. It is recommended to establish multisectoral frameworks with a rights- and gender-based approach (United Nations Population Fund, 2021).

In Ecuador, a recent study in Ecuador demonstrated that educational talks significantly improve knowledge about contraception, consent, and pregnancy risks, especially in rural adolescents (Guerrero Pachacama et al., 2025). A systematic review from an intersectional approach analyzed programs in Latin America and concluded that educational interventions increase condom use, sexual assertiveness, and contraceptive knowledge, but that the lack of inclusion of sexual and gender diversity limits their effectiveness (Librado-González et al., 2024).

This shows that the intervention is in line with international best practices. The improvement in knowledge, self-efficacy and critical perception observed in your study reflects what global literature considers to be pillars of an effective educational strategy: contextualization, participation, rights-based approach, sustainability and continuous evaluation. In addition, this work provides valuable evidence from Latin America, contributing to the international dialogue

Conclusions

The educational strategy implemented in adolescents in the southern area of Manabí proved to be effective in improving knowledge, self-efficacy and critical understanding of the prevention of adolescent pregnancy. The results show a significant increase in knowledge about contraceptive methods, risks of early pregnancy and sexual consent, improvement in self-efficacy for condom use, especially among rural women, and high acceptance by students, who valued the participatory and emotional approach of the intervention. These findings support the need to institutionalize comprehensive, culturally relevant, and sustained educational strategies as a key tool to promote the sexual and reproductive well-being of adolescents in vulnerable contexts. In addition, the study provides contextualized evidence that can guide public policies and school programs in Ecuador and Latin America.

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