# REVIEW



# Science-technology-society approach to preventing teenage pregnancy as a social problem

# Enfoque ciencia-tecnología-sociedad en la prevención del embarazo en la adolescencia como problema social

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#### ABSTRACT

**Introduction:** pregnancy in adolescence is a physical risk factor, with a favorable impact from emotional, social, educational and economic factors.

**Objective:** to argue the social value of the prevention of pregnancy in early adolescence by the Basic Health Team.

**Method:** a review was carried out on pregnancy in adolescence, aimed at exploring risk factors that influence this phenomenon and the intervention of the Basic Health Team in its prevention. The search and analysis of the information took place over a period of 90 days (April 1, 2024 to June 31, 2024); the analysis variables were oriented to: pregnancy, adolescent, risk factors, use of contraceptives, early sexual relations, psychological factors, sexuality, sexual education, associated consequences, social impact.

**Results:** lack of adequate sexual education and limited access to contraceptive methods are factors that influence adolescent pregnancy. Associated risks were detected, such as early sexual relations and consumption of harmful substances. Insufficient intervention by the Basic Health Team to solve these problems.

**Conclusions:** pregnancy in early adolescence is a social problem that requires greater intervention by the basic health team as an action from the school stage through the school, family and community; hence the importance of greater community involvement.

Keywords: Pregnancy in Adolescence; Prevention; Social Problem; School; Family; Community.

#### RESUMEN

**Introducción:** el embarazo en la adolescencia constituye un factor de riesgo físico, con impacto favorecedor de los factores emocionales, sociales, educativos y económicos.

**Objetivo:** argumentar el valor social de la prevención del embarazo en la adolescencia precoz desempeña por el Equipo Básico de Salud.

**Método:** se realizó una revisión acerca del embarazo en la adolescencia, orientada a la exploración de factores de riesgos que influyen en este fenómeno y la intervención del Equipo Básico de Salud en su prevención. La búsqueda y análisis de la información transcurrió en un periodo de 90 días (1 de abril de 2024 al 31 de junio de 2024); las variables de análisis se orientaron a: embarazo, adolescente, factores de riesgo, uso de anticonceptivos, relaciones sexuales tempranas, factores psicológicos, sexualidad, educación sexual, secuelas asociadas, repercusión social.

**Resultados:** carencia de educación sexual adecuada y la limitación en el acceso a métodos anticonceptivos son factores que influyen en el embarazo adolescente. Se detectaron riesgos asociados como relaciones

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**Conclusiones:** el embarazo en la adolescencia precoz es un problema social que requiere mayor intervención del equipo básico de salud como acción desde la etapa escolar a través de la escuela, familia y comunidad; de ahí la importancia de una mayor implicación de la comunidad.

Palabras clave: Embarazo en la Adolescencia; Prevención; Problema Social; Escuela; Familia; Comunidad.

#### **INTRODUCTION**

Adolescence is the stage that follows childhood and lasts until adulthood; it is a period of intense transformations on a physical, psychological, and social level, which makes this stage a fragile period of the life cycle. It isn't easy to establish the exact time limits of this period, which range from 10 to 19 years of age.<sup>(1,2)</sup>

Pregnancy during adolescence is a health challenge with general implications due to the dangers and complications it entails for the mother, the child, and its impact on society.<sup>(2,3)</sup> It is estimated that more than 80 % of these pregnancies are unwanted, happen without planning, or are the result of unprotected sex, often within unstable relationships where the father is also an adolescent.<sup>(3,4)</sup>

Early sexual intercourse affects family harmony; this is often the main reason behind school dropout, and the number of young people who abandon their studies due to very early pregnancies is considerable.<sup>(5)</sup>

A notable increase in pregnancies during adolescence may be attributable to the early onset of menarche. <sup>(6)</sup> In this context, the gender perspective is crucial, as there are still erroneous beliefs that consider pregnancy as a form of femininity. Furthermore, some young people believe that sexual acts should be performed for nonsexual reasons, such as pity, ignorance, or the exploration of their sexuality.<sup>(7)</sup>

Family factors also play an essential role. Lack of affection, physical abuse (including sexual abuse), and lack of communication and guidance are aspects that can influence this problem. A conflictive family environment, as well as the presence of very strict or excessively permissive families, are also significant factors that contribute to the risk of teenage pregnancy.<sup>(8,9)</sup>

In 2023, the teenage pregnancy rate in Cuba reached 19.7 %, an increase from the 17.8 % recorded in 2022. This increase has been mainly observed in provinces such as Granma, Isla de la Juventud, Holguín, Las Tunas, and Sancti Spíritus, where the figures exceed the national average. The authorities attribute this increase to the shortage of contraceptives and a lack of sex education.<sup>(10)</sup>

In Guantánamo, health education is provided daily, along with health promotion and prevention activities, but this is still insufficient. According to statistical data provided by the Provincial Health Directorate, teenage pregnancy is showing a worrying trend. In 2023, the percentage of adolescent pregnancies represented 18.8 %, with 871 pregnancies in this age group. On the other hand, in the municipality of Guantánamo, it was 17.0 %, with 321 teenage pregnancies out of a total of 1888. These data indicate that, despite the efforts made to reduce adolescent pregnancies, this problem continues to be significant at both the provincial and municipal levels. This denotes that it is a real social problem, which underlines the need to implement effective strategies for prevention and comprehensive sex education. Therefore, the prevention of early teenage pregnancy through the integration of the Basic Health Team, students, teachers, family, and community is insufficient.

The objective of this work is to argue the social value that the Basic Health Team plays in the prevention of early teenage pregnancy that impacts students, teachers, families, and the community.

#### METHOD

A review was carried out on early teenage pregnancy, focusing on the risk factors that influence this phenomenon and the interventions of the Basic Health Team in its prevention. The search and analysis of the information was carried out over a period of 90 days, from April 1, 2024 to June 31, 2024. The keywords representing the analysis variables were used: teenage pregnancy, risk factors, contraceptive use, early sexual intercourse, sexuality, sex education, associated consequences, social repercussions.

Various academic and scientific databases were consulted, including PubMed, Scielo, Google, Scholar, and LILACS. From these sources, 33 references were selected, of which 31 corresponded to the last five years which met the stated inclusion and exclusion criteria (define inclusion and exclusion criteria; they could be other values so that it does not clash with what you have done) for the research topic.

#### **Inclusion Criteria**

- Magazine publications
- Original and review articles
- Articles from the last 5 years
- Articles in English, Portuguese or Spanish

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• Articles from the Latin American region

#### **Exclusion criteria**

- Publications from web pages
- Publications of non-original and review articles
- Publications of articles more than 5 years old
- Publications in languages other than English, Portuguese or Spanish
- Articles outside the Latin American environment.

#### DEVELOPMENT

According to the World Health Organization (WHO), teenage pregnancy is defined as a pregnancy that occurs between the ages of 10 and 19, regardless of the biological or psychological maturity of the adolescent or her degree of independence from the family unit.<sup>(11)</sup>

It is estimated that half of all teenage pregnancies occur within six months of the onset of sexual activity, and 20 % occur in the first month. The most common methods of contraception among teenagers are withdrawal and the calendar method, although these are not always used correctly, with the pill being the next most frequent option.

Early and unprotected sexual activity can result in unwanted pregnancies and sexually transmitted diseases. However, morbidity and mortality during adolescence do not compare with the long-term consequences that this phenomenon has on the biological, social, and psychological development of younger generations.<sup>(2,12)</sup>

This social phenomenon has a negative impact on the life cycle of women from an early age, affecting their development in multiple dimensions.

Teenage pregnancy is a growing problem in both industrialized and developing countries. In the United States, there are more than half a million teenage pregnancies annually, with a rate of one per hundred teenagers. Similar situations are observed in Europe, where Great Britain and Germany report the highest figures.<sup>(13)</sup>

Adolescence is characterized by an increase in the capacity for commitment and the formation of a stable identity, which is reflected in the individual's self-image over time. During this stage, young people develop skills to plan their future, focusing on concrete goals related to studies, employment, and romantic relationships.<sup>(14)</sup>

The connection with loved ones becomes essential, with a less judgmental approach and a friendlier attitude towards parents.<sup>(15)</sup> The analysis of adolescence requires an understanding of the periods that surround it: childhood and adulthood.

Unlike adults and children, who have a clear identification with their group, adolescents find themselves in an intermediate position, not fully defined by either, as society perceives them ambiguously.<sup>(16,17)</sup> Young people experience some difficulty in finding their place in society and fulfilling their responsibilities, which is reflected in their somewhat insecure behavior.<sup>(16)</sup>

# **Risk Factors**

There is no specific cause of teenage pregnancy. There are a variety of factors linked to its development, all of which are interrelated. Consequently, one risk factor can facilitate exposure to another; hence, intentional attention in adolescence is relevant from the perspective of integrating all factors in a way that highlights social factors.<sup>(18,19)</sup>

The drive towards sexual activity at an early age, before fully developing the emotional maturity necessary for adequate prevention, represents the most significant risk. This can result not only in teenage pregnancies but also in a significant increase in sexually transmitted infections (STIs). Unfortunately, these are sometimes only diagnosed in advanced stages or when complications have become irreversible.<sup>(20)</sup>

Another noteworthy risk factor is the lack of sex education, where there are still uncertainties about issues related to sexuality, birth control, the use of contraceptive methods, and sexually transmitted infections. The latter is influenced by the deficiencies of the roles played by the family, educational institutions, and health services; these are essential elements in the transmission of information on reproduction, sexuality, and the prevention of pregnancy in young people.<sup>(21)</sup>

The lack of use and lack of knowledge of protection methods, especially condoms and other contraceptive methods, as well as frequently changing partners and mistakenly considering abortion as a contraceptive method, can expose adolescents not only to pregnancy but also to contracting sexually transmitted infections or endangering their reproductive and mental health.

The consumption of harmful substances facilitates risky sexual behavior during adolescence, altering their state of health. These substances diminish the perception of risk and increase the probability of engaging in unprotected sex.

Among addictive substances, alcohol is the favorite choice of young people, as it facilitates intimate

relationships, increases arousal, and involves them in risky activities. This substance is used with the intention of facilitating the process of seduction by reducing the resistance of adolescent girls who are shy or undecided about sexuality,<sup>(22)</sup> although it is also recognized that some seek out alcohol consumption themselves; through these effects, they achieve the sensation of being bold and of getting rid of embarrassment.

The first menstruation is a sign that the internal reproductive organs are developing and reaching reproductive capacity. This varies from one woman to another. Bodily manifestations, such as the initial development of the breasts, the appearance of pubic hair, and accelerated growth, vary in their timing before the actual onset of menstruation. It has been discovered that adolescents may seek sex as a way of satisfying their need for self-affirmation. There are certain personality factors that can facilitate adolescent pregnancy,<sup>(23)</sup> among which the following stand out:

- Setting appropriate goals and celebrating personal achievements.
- Difficulty in dealing with frustration.
- Emotional instability.
- Inability to regulate impulses.
- Lability of affectivity.
- Low self-esteem

#### Intellectual changes

In addition to the physical changes characteristic of this stage, youth is distinguished by a series of intellectual, emotional, and social changes. During this period, reasoning becomes more flexible, allowing adolescents to manage a greater number of mental processes and to grasp various social situations, as well as to make assumptions about those they do not yet fully understand.<sup>(24)</sup>

From an intellectual perspective, one of the most relevant aspects is the transformation of the type of thinking. Adolescents develop critical skills that allow them to tackle complex concepts, carry out logical evaluations and analyses, and argue effectively. This cognitive development is driven by structural and functional changes in the brain, which increase myelination and mature the prefrontal areas, facilitating more sophisticated reasoning and informed decision-making.<sup>(25)</sup>

#### **Emotional changes**

During this stage of the life cycle of development, the search for identity, the concept of oneself, the appearance of genitality, and the real possibility of procreation take shape; despite this, adolescents must face problems from early childhood that still need to be resolved.<sup>(26)</sup>

The urgency to satisfy the need for identification is pressing, and the belief of being omnipotent and the supremacy of the "I" converge in this period recognized as a stage of conflict in adolescents, given the temporary imbalances inherent in their development for their adaptation to the socio-environmental context - school, family and community.

#### Social changes

From a social perspective, the relationship with parents becomes very intense, sometimes due to a lack of support, situations of violence that arise within the family, the history of early pregnancy in the family, and the beliefs that are generated in their environment. Language is another aspect that characterizes them at this stage; similarly, clothing and accessories distinguish them from adults and children. In this sense, a critical review of the ethical and religious values learned in the family, school, and community is necessary in a way that allows for orientation towards one's own values and not values imposed by others.<sup>(28)</sup>

#### How can we approach sex education with adolescents?

Sex education is part of the educational process and is closely related to the integral formation of children and young people. It provides them with clarifying and reflective elements that promote positive attitudes towards sexuality. In this way, they can recognize, identify, and accept themselves as sexual and gendered beings without fear, anxiety, or feelings of guilt. All this, with the aim of fostering healthy interpersonal relationships and love, highlights the importance of the affective component in human life, both in couples and in family harmony.<sup>(22)</sup>

Hence, sex education should begin as early as possible and continue in a harmonious and progressive manner throughout life until the acquisition of reproductive capacity and psychological development of adolescence are achieved, such as the extension of affective and economic independence from their family of origin.<sup>(22,29)</sup>

Through comprehensive sex education, adolescents can acquire the knowledge and confidence necessary to make informed decisions about their sexual behavior, including the option of waiting until they feel ready to have sex.<sup>(22)</sup>

# Elements necessary to understand and address sex education in adolescents.

• Well-defined goals: Sex education is responsible for supporting adolescents in the acquisition of knowledge, skills, attitudes, and values that enable them to make informed decisions about their sexuality and foster healthy relationships. This implies being aware of our own body, valuing others, and being able to effectively express our needs and desires.

• Comprehensive approach: It is essential that sex education includes not only information about biology and reproduction but also emotional, social, and ethical aspects. This means addressing issues such as consent, relationships, sexual diversity, and respect for differences.

• Inclusive Education: Education should be welcoming, taking into account the different sexual orientations and gender identities of young people. This helps to create a safe environment where all young people feel valued and respected.

• Encouraging open conversations: It is essential to promote an environment that allows teenagers to freely express their concerns and doubts about issues related to sexuality. This consists of conversations within the family, in the school environment, or in various community groups. Effective communication helps to dispel myths and reduce the lack of information.

• Development of practical skills: Sex education should include activities that help teenagers acquire practical skills to deal with situations related to their sexuality, such as how to say no or negotiate the use of contraceptive methods. This provides them with the tools to make informed and responsible decisions.

• Risk prevention focuses on minimizing potential dangers: It is essential to address issues related to the prevention of unplanned pregnancies and sexually transmitted diseases (STDs). Education should cover knowledge of contraceptive methods and safe sex practices, as well as offer guidance on making healthy decisions.

• Taking care of emotional needs: It is crucial to recognize adolescence as a period of profound emotional change. Sex education aims to support young people in understanding and managing their emotions in the context of emotional and sexual relationships.

• Cultural adaptation, harmonious approach: Sex education programs must be culturally appropriate and tailored to the local circumstances of young people. This means taking into account the cultural norms, beliefs and values that may affect their attitudes towards sexuality.

• Lifelong learning: Sex education should be ongoing and progressive, adjusting to the growth and changes of adolescents. It is essential to start education from an early age and continue nurturing it throughout adolescence to explore and resolve new concerns that may arise.

Therefore, the complete approach to guiding adolescents in sex education involves fostering understanding, respect, and proper communication. By providing people with the right tools to make informed decisions about their sexual health, we promote the development of more confident and responsible individuals.

# After-effects of teenage pregnancy

Pregnancy and maternity during adolescence affect more women in rural areas and with low educational levels, which increases the risk of perpetuating the cycle of poverty for at least another generation.<sup>(30)</sup>

Among the most notorious implications of teenage pregnancy are the health risks to the mother and the newborn, the first and greatest risk, to which are also added the social, psychological, and economic risks for the couple and their families, to which is added the possibility of poor educational training and the threat of being victims of the social stigma faced by teenage mothers.<sup>(31,32)</sup>

On the other hand, there are multiple obstacles to starting or continuing school, barriers to accessing present or future work, and the risk of falling or remaining mired in economic deprivation.

- Frequent clinical conditions: anemia, complications during childbirth, abortion or expulsion of the fetus before it is fully developed and, in extreme cases, even resulting in loss of life.
- Psychological: frustration and depression, generated by the restriction of not being able to lead a life appropriate to their age; feelings of guilt and low self-esteem are also experienced.
- Social: rejection by other people, family problems, difficulties at school, challenges at work and early marriages.

# What role does the first level of care play in the prevention of teenage pregnancy in Cuba?

Primary Health Care (PHC) is based on doctors' and nurses' surgeries as the basic health team. It is oriented towards the family, as they are responsible for forging the first feelings and experiences in adolescents. The home is the space that provides the necessary conditions for children, as they grow, to become mature and stable personalities by satisfying their emotional needs for security and trust, as well as the material needs required for their growth and development.<sup>(33)</sup>

Primary care must play a leading role so that the family takes on a crucial position in relation to the health of adolescents, their development, and social well-being. The analysis of the family as a social group is fundamental for health professionals since it exerts a great influence on the development of personality.

Proposals for actions aimed at strengthening the prevention of teenage pregnancy based on science and technology

• Digital educational platforms: creating mobile applications and websites that provide data on sexual health, contraceptive methods, and assistance, improving access to essential information.

• Telemedicine: implementing telemedicine services that allow adolescents to consult health professionals confidentially on issues of sexuality and contraception.

• Social media campaigns: digital platforms are used to disseminate important messages about sexual responsibility, family planning, and pregnancy prevention. This allows for the popularization of social media among young people.

• Computerization: establish a real-time data collection system to monitor trends in adolescent pregnancies, allowing for quick adjustments in policies and programs.

• Inter-institutional collaboration: fostering alliances between educational, health, and technological institutions to create comprehensive programs that address sex education from multiple perspectives.

• Educational mobile applications: these will provide data on sexual health, contraceptive methods and local resources, facilitating access to reliable information.

• Sexual Health Teleconsultations: offering telemedicine services so that teenagers can consult health professionals, resolve their doubts, and receive confidential advice.

• Virtual learning platforms: creating online courses on comprehensive sex education, addressing reproductive rights, family planning, and self-esteem.

• Use of Social Networks: implement campaigns on social networks that promote messages about sexual responsibility and pregnancy prevention. Local influencers will be used with the aim of reaching young people.

• Local Research: encourage studies that analyze the specific causes of adolescent pregnancy in Guantánamo, thus allowing the design of interventions based on concrete data and adapted to the local reality.

#### **Final considerations**

Teenage pregnancy is a social problem that affects young mothers and their children; multiple risk factors, including biological, psychosocial, and family aspects, have an impact on complications during pregnancy and childbirth. Hence, the importance of interprofessional collaboration to address this challenge requires the implementation of comprehensive strategies involving the family, school, and community to promote responsible sex education and improve reproductive health. To this end, it is necessary to promote technoscientific actions that are attractive to adolescents in order to generate knowledge that will enable them to empower themselves and prevent this social problem.

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#### **CONFLICT OF INTEREST**

The authors declare that there is no conflict of interest.

#### **AUTHORSHIP CONTRIBUTION**

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