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Commentary

Growing up well: a holistic approach to puberty education for preadolescents

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ABSTRACT

During puberty, adolescents may face challenges such as anxiety, low self-esteem, irritability, and fear of rejection. Factors such as family environment, peer relationships, academic pressure, and social media exposure can influence emotional health. Understanding puberty helps reduce fear and confusion, enabling children to accept these changes as a normal part of growth. The objective was to promote healthy development, to provide accurate and age-appropriate information and to adopt healthy lifestyle. Opinion box system for emotional expressions, holistic adolescent support framework, a "guru–student" model, yoga into daily school assembly, short mindfulness before start of every class, prayers or value-based readings such as Thirukkural can enhance moral development. Integrated puberty education and protection model, community-based child safety display model contributes to broader goals of national development and child protection. Studies on Innovative technology using Artificial Intelligence, Role-play-based research helps to create awareness and build confidence in real-life situations. Collaboration between the health and education sectors can facilitate the development of school health programs, adolescent-friendly services, and community awareness initiatives. Puberty education is highly relevant in the Indian context, where cultural values, family systems and social expectations strongly influence a child's development.

Keywords: Puberty, Pre adolescence, Puberty education, Holistic development models

INTRODUCTION

Puberty is a natural stage of development during which a child's body matures into an adult body capable of reproduction. It generally occurs between the ages of 8–13 years in girls and 9–14 years in boys. This phase involves a series of physical, emotional, and psychological changes that prepare an individual for adulthood. Understanding puberty helps reduce fear and confusion, enabling children to accept these changes as a normal part of growth.

Objectives of puberty education

The objectives of the study are: to promote healthy development, to build self-confidence, to encourage responsible behavior, to reduce anxiety and fear associated with bodily changes, to improve awareness of reproductive health, to provide accurate and age-appropriate information, to adopt healthy lifestyles.

A quasi-experimental study conducted in Yazd, Iran, examined the effectiveness of puberty health education based on the Health Belief Model (HBM) in improving perceived body image among female adolescents. The study was carried out among 60 sixth-grade girls selected through cluster sampling and randomly assigned to experimental and control groups. The Health Belief Model in health education posits that individuals' engagement in health-promoting behaviors is influenced by personal perceptions, adaptive behaviors, and the perceived likelihood of performing such actions. In this study, the experimental group received structured puberty health

education through eight 45-minute sessions while the control group was taught using traditional lecture methods. The mean age of participants was 12.16±0.74 years. Findings demonstrated a significant improvement in perceived body image and self-attitude among students in the experimental group compared to the control group. The study highlights the efficacy of theory-based health education interventions, particularly those grounded in the Health Belief Model, in promoting positive body image and psychological well-being among adolescent girl.[1]

PHYSICAL AND BODILY CHANGES IN PUBERTY

Puberty is characterized by several physical changes in both boys and girls. These include rapid growth in height and weight, development of pubic and underarm hair, increased sweating, body odor, and changes in body shape. Oily skin and acne are also common. These changes are natural and occur as part of the body's maturation process.

GENDER-SPECIFIC CHANGES IN PUBERTY

In girls, puberty typically begins with breast development, followed by the onset of menstruation. The hips widen, and there is increased fat distribution in areas such as the thighs and buttocks. Vaginal discharge may occur as a normal sign before menstruation begins. In boys, puberty involves enlargement of the testes and penis, initiation of sperm production, deepening of the voice, growth of facial and body hair, and increased muscle development. Nocturnal emissions may also occur as a normal physiological process.

HORMONAL AND INTERNAL CHANGES

The changes seen during puberty are driven by hormonal activity within the body. The hypothalamus signals the pituitary gland to release hormones, activating the hypothalamic–pituitary–gonadal axis. This process stimulates the ovaries in girls and testes in boys to produce sex hormones such as estrogen, progesterone, and testosterone. These hormones regulate physical growth, reproductive development, and emotional responses.

Hormonal changes during puberty influence both physical and emotional health. Adolescents may experience mood swings, increased emotional sensitivity, and heightened awareness of sexuality. Changes in sleep patterns and appetite are also common. Some may face issues such as acne, irregular menstrual cycles in the early stages, and variations in the timing of puberty. Understanding these effects helps adolescents cope better with these changes.

Globally, educating young adolescents about pubertal changes is recognized as an essential component of health promotion. However, in many settings, the inclusion of sexual and reproductive health education in school curricula remains controversial contributing to limited access to accurate information among children aged 10–14 years. A qualitative study conducted in Eastern Uganda explored adolescents' knowledge and experiences related to pubertal body changes. The study employed focus group discussions, with data collected from 19 groups across 16 purposively selected primary schools. The data were transcribed, coded, and analysed thematically. The findings revealed notable differences in awareness based on gender and geographical setting. Girls in rural schools demonstrated greater awareness of pubertal body changes compared to their urban counterparts, whereas boys in urban schools were more knowledgeable than those in rural areas. Both boys and girls reported actively seeking to manage pubertal challenges by relying on guidance from teachers, parents, and peers. Importantly, adolescents who possessed adequate knowledge about pubertal changes were better equipped to cope with related challenges. The study underscores the importance of context-sensitive, school-based interventions to improve access to puberty education and support adolescents during this critical developmental stage.[2]

EMOTIONAL AND PSYCHOLOGICAL CHANGES DURING PUBERTY

Mood swings and increased sensitivity are common due to hormonal fluctuations. At this stage, individuals begin to develop their self-identity and may experience attraction toward others. There is also a growing desire for independence, which may sometimes lead to conflicts with parents or caregivers.

SOCIAL CHANGES AND PERSONAL HYGIENE

Peer influence becomes stronger and adolescents develop a greater interest in friendships and relationships. Concerns about body image and appearance often increase during this period. Alongside these changes, maintaining personal hygiene becomes essential. Daily bathing, use of deodorants, menstrual hygiene management for girls, oral care and wearing clean clothes are important practices that promote health, confidence, and social acceptance.

NUTRITION DURING PUBERTY

A balanced diet helps maintain hormonal balance, strengthens bones and muscles, and improves immunity and energy levels. Nutrients such as protein, calcium, iron, vitamins, carbohydrates, and healthy fats are essential during this stage. Encouraging healthy eating habits and limiting junk and processed foods are important for overall well-being.

Recent trends indicate a decline in the age of pubertal onset among girls compared to previous decades, a phenomenon that has been partly attributed to increased consumption of processed and high-fat foods. Overweight and obesity have been identified as significant factors associated with early pubertal onset in girls, while evidence suggests that excess body weight may delay pubertal onset in boys. In addition to influencing timing, nutritional status also affects the progression of puberty. During adolescence, rapid growth and development increase the body's demand for both macronutrients and micronutrients, including calories,

protein, iron, calcium, zinc, and folate. Conversely, inadequate nutrition whether due to primary or secondary malnutrition can delay the onset and progression of puberty. Eating disorders such as anorexia nervosa and bulimia, which are increasingly prevalent among adolescents, further pose significant risks to normal pubertal development. Overall, these findings highlight the pivotal role of balanced nutrition in ensuring healthy pubertal maturation and underscore the need for targeted nutritional interventions during adolescence.[3]

PEER GROUPS

Peer groups become highly influential during puberty, providing a sense of belonging, emotional support, and opportunities to develop social skills. Positive peer interactions can motivate adolescents to adopt good habits and build self-confidence. However, negative peer influence can lead to risky behaviors, distraction from studies, and poor self-image. Therefore, adolescents should be guided to choose friends wisely and maintain a balance between peer relationships and personal goals.

PEER PRESSURE

Peer pressure can be direct or indirect and may have both positive and negative effects. While positive peer pressure can encourage healthy behaviors, negative pressure may lead to harmful activities such as substance use or unsafe social behaviors. Adolescents should be equipped with skills to handle peer pressure, including assertiveness, self-confidence, and decision-making abilities.

FAMILY LIFE EDUCATION

Family life education prepares adolescents to understand physical and emotional changes, develop healthy relationships, and make responsible decisions. It provides knowledge about growth, reproductive health, personal safety and emotional management. Families play a key role in delivering these values by creating a supportive environment, encouraging communication, and acting as role models.

Education provides accurate and age-appropriate information about reproductive health, including the structure and function of reproductive organs, menstruation, and basic knowledge of pregnancy. Open communication helps reduce misconceptions, promotes healthy attitudes, and encourages responsible behavior among adolescents.

Pubertal development is closely associated with significant neurobiological reorganization during adolescence. This period involves substantial maturation of brain regions responsible for emotional experience and regulation. Evidence suggests that adolescent girls, in particular, exhibit heightened emotional intensity and reactivity during puberty, along with increased sensitivity to affective facial expressions and social-emotional cues, compared to boys and preadolescent children. Although empirical research examining puberty as a direct predictor of emotion regulation styles remains limited, several theoretical perspectives propose that pubertal maturation may contribute to the development of maladaptive emotion regulation patterns. These vulnerabilities may, in turn, increase the risk of internalizing disorders such as anxiety and depression during adolescence. Overall, the literature highlights puberty as a critical window influencing emotional development and underscores the need for further research into its role in shaping mental health outcomes.[4]

EMOTIONAL WELL-BEING IN PUBERTY

Emotional well-being refers to the ability to understand, manage, and express emotions in a healthy way. During puberty, adolescents may face challenges such as anxiety, low self-esteem, irritability, and fear of rejection. Factors such as family environment, peer relationships, academic pressure, and social media exposure can influence emotional health.

MYTHS AND FACTS ABOUT PUBERTY

Addressing myths about puberty through accurate, age-appropriate education is essential for promoting healthy development and preventing misinformation. Empowering adolescents with scientific knowledge helps build confidence, reduces anxiety, and fosters positive health behaviors (Table 1).

Table 1: Myths and facts about puberty.

S. no.	Myth	Facts
1.	Puberty starts at the same age for everyone	Puberty begins at different ages. Girls typically start between 8–13 years and boys between 9–14 years. Variations are normal and influenced by genetics, nutrition, and environment.
2.	Early or late puberty is always abnormal	Most variations are normal. Only extremely early or delayed puberty may require medical evaluation.
3.	Menstruation is impure or unhygienic	Menstruation is a natural biological process and not dirty. Proper hygiene ensures health and comfort.
4.	Boys do not experience emotional changes during puberty	Boys also experience emotional and psychological changes due to hormonal fluctuations.
5.	Talking about puberty encourages inappropriate behavior	Providing accurate information promotes healthy attitudes and responsible decision-making.

Continued.

S. no.	Myth	Facts
6.	Acne occurs due to poor hygiene	Acne is mainly caused by hormonal changes leading to increased oil production, not just poor hygiene.
7.	Growth stops immediately after puberty	Growth continues for a few years after puberty and stops gradually.
8.	Masturbation is harmful or causes weakness	It is a normal behavior during adolescence and does not cause physical harm when practiced in moderation.
9.	Only girls need puberty education	Both boys and girls need puberty education for better understanding and respect.
10.	Physical changes happen all at once	Puberty is a gradual process occurring over several years.

DISCUSSION

Holistic Puberty Education for Preadolescents: Roles of Individuals, Families, Schools, and Society"

Relevance to Indian context

Puberty education is highly relevant in the Indian context, where cultural values, family systems and social expectations strongly influence a child's development. In many settings, discussions about puberty remain limited or sensitive, which can lead to confusion, fear, or misinformation among preadolescents. Therefore, structured and culturally appropriate education is essential to promote healthy understanding, positive attitudes, and safe behaviors. Integrating traditional values with modern knowledge can help children navigate physical and emotional changes confidently while maintaining respect for societal norms.

Empowering preadolescents for healthy development

Preadolescents play an important role in shaping their own development during puberty. They should be encouraged to build a positive self-image and develop healthy body awareness, including an understanding of culturally appropriate dressing. Strengthening self-esteem is essential for emotional well-being and confidence. Engaging in regular play activities supports physical health, creativity, and social skills. Healthy peer relationships should be promoted, as peer influence can significantly impact behavior during this stage. Practicing yoga daily can improve both physical and mental balance. Additionally, developing self-discipline and learning to respect others are key values that contribute to overall personality development.

Family-centered approaches to puberty guidance

Parents and family members play a crucial role in guiding children through puberty. They should consistently demonstrate love, respect, and appreciation toward their children to build trust and emotional security. Creating a safe and supportive home environment is essential. Families should plan regular quality time together, including interactions with grandparents, through activities such as storytelling, games, music, and shared conversations. Eating meals together as a family strengthens bonding and communication. Parents should also guide children in developing spiritual values and cultural practices. Providing proper dietary guidance is important, including discouraging unhealthy fast foods and promoting nutritious eating habits. Establishing bedtime routines ensures proper sleep and helps maintain a healthy biological rhythm.

School-based strategies for adolescent support and development

Schools play a vital role in supporting children during puberty by continuing discipline and character-building activities. They should assess academic pressures and help students build resilience to manage stress effectively. Opinion Box System for Emotional Expression can support. Providing opportunities for extracurricular activities allows students to explore their interests and talents. Establishing suggestion or opinion boxes in classrooms encourages students to express their thoughts and concerns freely. There can be a Holistic Adolescent Support Framework. A supportive mentoring system, similar to a "guru–student" model, can be developed where older students guide younger ones under supervision. Incorporating yoga into daily school assemblies promotes physical and mental well-being. Beginning each class with short mindfulness practices, prayers, or value-based readings such as Thirukkural can enhance moral development.

Community and societal responsibilities in child protection

Society has a collective responsibility to ensure the safety and well-being of preadolescents. Public spaces should be made safe and secure for children. Integrated Puberty Education and Protection Model can well integrate. Law enforcement agencies can engage with children to understand their concerns and improve safety measures. Appointing child health counselors in primary health centers can help monitor children's psychosocial well-being through regular home and school visits. Community-Based Child Safety Display Model can well integrate. Awareness boards should be displayed in public places such as roadsides, schools, transport hubs, hospitals, and markets, highlighting child safety messages and legal protections. These initiatives can help prevent child abuse and trafficking while promoting a secure environment, contributing to broader goals of national development and child protection.

Advancing puberty education through research and innovation

Research plays an essential role in improving puberty education and child safety. Studies can focus on developing innovative technologies, such as wearable devices with sensor-based alerts that notify parents in unsafe situations. Research on psychosocial well-being and educational interventions can help design effective puberty education programs. Qualitative studies exploring children's attitudes, perceptions, and assertive behaviors during puberty can provide deeper insights into their needs. Role-play-based research can also be used to teach and evaluate safe public behaviors among preadolescents, helping to create awareness and build confidence in real-life situations.

Evidence-based interventions for effective puberty education

Evidence-based interventions play a crucial role in enhancing the effectiveness of puberty education among preadolescents. School-based health education programs grounded in behavioral theories, such as the Health Belief Model and Social Cognitive Theory, have demonstrated significant improvements in knowledge, attitudes, and self-care practices among adolescents. Structured, age-appropriate sessions incorporating interactive methods such as group discussions, role plays, and visual learning tools have been shown to improve body image perception, emotional regulation, and decision-making skills.

Parental involvement is another key evidence-based strategy. Studies indicate that adolescents who receive open and supportive communication from parents exhibit better emotional adjustment and reduced engagement in risky behaviors. Training programs for teachers and school health personnel further strengthen the delivery of accurate and sensitive information.

In addition, integrating digital health platforms and mobile-based educational tools can enhance accessibility and engagement, especially among urban populations. Community-based interventions, including adolescent health clinics and peer education programs, have also proven effective in promoting reproductive health awareness and personal safety. Overall, a multi-component approach combining school, family, and community participation yields the most sustainable outcomes in puberty education.

Need for policy and educational integration

There is a pressing need to strengthen policy frameworks and educational systems to ensure the universal delivery of structured puberty education. In many regions, including India, gaps in curriculum integration, cultural barriers, and limited teacher training hinder effective implementation. Policymakers must prioritize the inclusion of comprehensive, age-appropriate, and culturally sensitive puberty education within school curricula. Capacity-building programs for educators, standardized teaching guidelines, and monitoring mechanisms are essential to maintain quality and consistency.

Furthermore, collaboration between the health and education sectors can facilitate the development of school health programs, adolescent-friendly services, and community awareness initiatives. Investment in research and innovation, including digital learning platforms and child safety technologies, can further enhance outreach and impact. Strengthening these systems will ensure that all preadolescents receive the knowledge and support necessary for safe, healthy, and confident development during puberty.

CONCLUSION

Puberty represents a critical transitional phase that significantly influences an individual's physical, emotional, and social development. Comprehensive puberty education is essential to equip preadolescents with accurate knowledge, positive attitudes, and practical skills required to navigate these changes with confidence. This concept article highlights the importance of adopting a holistic and culturally sensitive approach that integrates biological education with emotional support, social awareness and life skills development. The combined efforts of families, schools, healthcare systems and communities are vital in creating a supportive environment for adolescents. Empowering young individuals during this formative stage not only improves their immediate well-being but also contributes to the development of a healthier and more informed society.

REFERENCES

1. Barkhordari-Sharifabad M, Vaziri-Yazdi S, Barkhordari-Sharifabad M. The effect of teaching puberty health concepts on the basis of a health belief model for improving perceived body image of female adolescents: a quasi-experimental study. BMC Public Health 2020;20(1):370.
2. Bunoti SN, Tumwesigye NM, Atuyambe L. Awareness of pubertal body changes among primary school children aged 10–14 years in Eastern Uganda; challenges and opportunities. Reproductive Health 2022;19(1):180.
3. Soliman A, De Sanctis V, Elalaily R. Nutrition and pubertal development. Indian J Endocrinol Metab 2014;18(Suppl 1):S39–S47.
4. Alloy LB, Hamilton JL, Hamlat EJ, Abramson LY. Pubertal development, emotion regulatory styles, and the emergence of sex differences in internalizing disorders and symptoms in adolescence. Clinical Psychological Science 2016;4(5):867-81.

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