

# Assess Puberty Health Needs Among 10-15-year-old Boys

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## Research

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# Abstract

**Background:** According to the studies conducted, teenage period and its related health issues are one of the most significant issues. This study aimed to investigate the health needs of 10–15-year-old teen boys about puberty.

**Methods:** This cross-sectional descriptive-correlational study was performed on boy's teen (10-15 year-old) through stratified-cluster sampling in Ardabil city. The data gathering tool was a self-reported researcher-designed questionnaire consisting of 10 demographic questions, 35 questions in 5 categories; Awareness of puberty changes, sexual orientation, mood swings, health behavior, self-confidence and 5 questions about educational demands. Descriptive statistics and chi-square test, correlation coefficient and regression were used to analyze the quantitative data.

**Results:** The mean age of the teen boys was  $11.38 \pm 4.37$ . There was a significant relationship between the father and mother's level of education and teen boys' awareness of puberty changes ( $p < 0.001$ ). The results of this study showed that 69.8% of teen boys were not well aware of puberty (change of puberty and health behavior) and about 87% teen boys in this study did not have access to the required educational resources and 82% percent of the families did not talk about the change of puberty and hygiene practices related to their teenagers also Correlation test between teen boys' health behavior and awareness of puberty changes ( $r = 0.12$   $p < 0.007$ ) and between self-confidence and health behaviors ( $r = 0.14$ ,  $p < 0.001$ ) revealed significant and positive relationships.

**Conclusion:** There is a need among teen boys for information about puberty changes and related health behaviors also the role of families is the most important source of information for teen boys.

## Background

Puberty is the word used to describe all the changes that begin to happen when a child turns into an adult. This growth and development phase is also called adolescence [1]. With biological changes and sexual maturation, adolescents must incorporate their new body images, reproductive capacity and emerging sexual energies into their identity and learn to cope with their own and others [2]. There are biologically-based differences for teen boys in the timing of puberty and socially constructed gender differences in the meaning of and reactions to puberty for teen boys, boys are slower to mature sexually, with testicular enlargement generally occurring between 10.5 and 13.5 [3].

Despite the needs of teenage boys during this period, typically nor offered spaces to ask questions or seek information about these changes [3]. Teenagers need to understand the profound change they are experiencing and be equipped with the skills to cope with it education should develop the knowledge, attitudes, values and skills needed to live a healthy life [4]. These skills are aimed at raising self-esteem and self-confidence, helping young people to resist peer pressure and increase their health-seeking behavior's and the most important part of a training is recognizing the needs of the target group [5]. Additionally, these skills have a social dimension, in that they aim to build empathy, tolerance and

understanding of gender diversity[6]. It is important to remember that teens may not always be direct in their questions for the doctor. For example, teens worried about their development may express this through general complaints or indirect questions about body function [7]. In one study conducted by the Iranian Ministry of Health and Medical Education in Tehran showed that more than half of adolescents do not know about the symptoms of puberty or information is incomplete about symptom of puberty[8, 9]. Teaching puberty in schools can help learners better understand themselves and deal with the changes they are experiencing, and hence gain the self-esteem to overcome daily challenges they may face with teachers and peers in school. Adolescents also become more conscious of socially-constructed myths and taboos built around puberty, such as negative perceptions of menstruation or dismissal of emotion as un-masculine [10, 11]. A better understanding of puberty and life skills helps young people to make independent decisions and better cope with pressure from peers, family, community and media messages[9]. According to the cited issues and the importance of this period in the life of the future and the beginning of physical, mental and sexual changes we intended to carry out a research aimed at determining the health needs of teen boys' in Ardebil, to make a step towards raising the level of consciousness and culture of father of future of our country and helps to health authorities for develop educational programs to raise teen boys' awareness of issues related to puberty and health behaviors.

## Methods

### Study design

This correlation- Cross-sectional descriptive study was conducted on 452 teen boys (12–15 years -old) in Ardabil (Ardabil is an ancient city in northwestern Iran, and the capital of Ardabil Province). The city was first divided into five regions: north, south, east, west and central, and then randomly selected a number of clusters proportional to the population of each region. The sample size was determined based on inclusion criteria and 95% confidence level and 80% test power. Inclusion criteria include: 12–15 years old, residence in Ardebil city, would like to participate in the study. And exclusion criteria, including those under 12 and over 15 years old and not wanting to take part in the study.

For this study, a self-care puberty researcher-made questionnaire was used. The validity of questionnaire was determined by two methods of face validity and content validity, which confirmed by experts of health education, psychology, urologist. The total content validity index (CVI) in the “relevancy”, “simplicity”, and “clarity” respectively equals 86.6, 92.9, and 91.7. The reliability of the questionnaire further evaluated. Through internal consistency ( $\alpha = 0.81$ ) and test retest ( $r = 0.84$ ).

This questionnaire consisted of three parts. The first part consisted of 10 questions on demographic and family information, the second part consisted of 35 questions in 5 categories; Awareness of puberty changes, sexual orientation, mood swings, health behavior, self-confidence and the three part 5 questions about educational demands study group.

The questions in the second part of the questionnaire were divided into 5 categories:

Questions 1–14 were related awareness of puberty changes. In this section, each correct answer was scored with 1 and the score of the wrong answer with zero points. Maximum awareness score was set at 14 and the minimum score was zero.

Questions 15–17 assessed adolescents' self-confidence (judging and believing in their ability to perform tasks and activities) related on their ability to perform health behaviors. The questions were rated on a 4-point Likert scale of 4 I'm quite sure. From teen boys were asked to rate their confidence by choosing one of the options for adherence of health behaviors. Each correct answer had 4 points, with a maximum score of 12 and a minimum score of 4.

Questions 18–19 assessed teen boys 'sexual orientation (Sexual orientation refers to whether a person's physical and emotional arousal is to people of the same or opposite sex). The questions were rated on a 4-point Likert scale. From teen boys were asked to rate sexual orientation in three sub-categories (communicate with girls, mental ambiguity about the opposite sex and sexual matters) The maximum score in this section was set at 8 and at least 4.

Questions 20–23 assessed teen boys' mood swings (Mood swings during adolescence are partially due to biology. Hormonal shifts that occur during puberty play a major role in the way teens think and feel.). The questions were rated on a 4-point Likert scale. The maximum score in this section was set at 16 and at least 4.

Questions 24–35 about health behavior teen boys about puberty with two-choice questions with yes-and-no answer. In this section, each correct answer was scored with 1 and the score of the wrong answer with zero points. Maximum awareness score was set at 12 and the minimum score was zero. The last 5 questions assessed the educational needs of teen boys.

## **data analysis**

The data were analyzed by SPSS software version 19 and analyzed using chi-square, correlation coefficient and regression tests.

## **Results**

In this study, 452 teen boys 10–15 years were studied with a mean age of  $11.38 \pm 4.37$  years, 62.83% of participants were first and second children, and their mean the onset of puberty age was  $11.36 \pm 1.68$ . 33.1% of teen boys were obese or overweight. Other demographic and social characteristics of the samples under study are shown in Table 1.

Chi-square test showed a statistically significant relationship between parent's education level ( $p = 0.001$ ) and teen boys' awareness of puberty changes.

Also, between parent age ( $p = 0.002$ ) and teen boys' health behaviors and sexual orientation ( $p = 0.003$ ). 88% of teen boys and 87.9% of parent's teen boys were interested in attending adolescents' special

education classes (Table 2).

The results of this study showed that 69.8% of teen boys had poor and incomplete knowledge about puberty changes and health behavior.

According to prioritizing questions 5,3,9,10 and 7 about awareness of first sign and change of puberty, genital changes and when to start, wet of dream, healthy diet during puberty, behavioral reaction to puberty changes, had the lowest score and were ranked the top 5 educational priorities in the awareness domain (Table 2).

Results showed that 64.3% of the teen boys had poor self-confidence and based on 30, 29, 28 prioritizations, three priorities of educational intervention were self-confidence. In regular daily behavioral reaction to puberty changes, genital changes and sexual orientation (Table 3).

Results showed that 78.3% of the teen boys had heterosexual desire and they couldn't manage that. According to prioritizing sexual orientation management and communication with girls the most important educational priority was this section.

Teen mood swings are most volatile in early adolescence and tend to stabilize as teens get older, mood swings during adolescence are partially due to biology in this study 51% of teens have experienced mood swings (happiness, anger, sadness, and anxiety) in the past three weeks also 82% did not know how to manage mood swings and they needed training.

In this study, health behavior was 73.4% of teen boys had moderate, Interventions and priorities for health behaviors improvement include: Health behaviors in puberty, healthy diet and physical activity.

According to the findings, promoting self-confidence was the most important educational priority in the formation of health behavior in in teen boys. According to the correlation test between the health behavior of teen boys and awareness ( $r = 0.13$ ,  $P < 0.007$ ) and between health behavior and self-confidence) ( $r = 0.12$ ,  $P < 0.001$ ) among teen boys were significant and positive, and based on linear regression by backward elimination among the variables with positive correlation with self-confidence behavior was the most important predictor of adolescent behavior in this study.

Analyze 5 questions related to educational demand showed some educational priorities; reproductive health educating parents and teachers to understand puberty, educating adolescents themselves about changes during the puberty in schools.

The results of the study showed that in the overall scoring, Intervention on adolescent self-confidence is first priority and sexual orientation and mood swing was in the second and third priority. Results are shown in the Fig. 1.

Table 1  
Demographic characteristics

Variable	Frequency (Percent)Number
Father's age (mean and standard deviation)	49.93 ± 9.79
Father's education	122(26.99) Under the diploma 330 (73) Academic
Mother's age (mean and standard deviation)	41.32 ± 7.21
Mother's education	128 (28/31) Under the diploma 324 (71.68) Academic
Household income	189 (44.47) Millions 5–2
Birth Rank	284 (62.83) 2–1 144 (31.85) 5–3 24(5.3) 6<

Table 2  
teen boy' awareness score status

row	Awareness questions	SD ± Average
1	What is the first sign and changes of puberty?	1.6 ± 0.82
2	Do you know what changes in your genitals during puberty?	1.81 ± 0.93
3	What is wet of dream?	1.90 ± 0.90
4	Teen boys need a few kilograms of energy during adolescence?	2 ± 1.5
5	What do you do when faced with puberty?	2.45 ± 0.20

Table 3  
teen boy's self-confidence score status

row	self-confidence questions	SD ± Average
1	I'm sure we will cope with the changes of puberty	0.89 ± 0.31
2	I am confident in my ability to cope with the changes of my puberty	1.54 ± 0.16
3	I'm sure I can control the tendency towards girls	2.92 ± 1.29

## Discussion

The results showed that teen boys in this study should have educational needs and information about puberty and its changes, sexual orientation, mood swings, health behavior and more importantly strengthening self-confidence was the most important item for improving health behaviors. also despite the tendency of teen boys to become aware of puberty, the majority of teen boys still did not know the full meaning of puberty and its changes.

The teen boys also had untrue scientific and physiological awareness of the phenomenon of puberty and its Changes. In this study, most teenagers had expressed the need for education on the reproductive health in order to resolve their problems. According to the recommendations of World Health organization (WHO), informing teenagers about reproductive health is one of the main elements in starting national plans for improving teenagers' health situation[12, 13]. On the other hand, according to the reproductive rights in the national law which accepts the international documents related to human rights and United Nations, access to the highest standards of reproductive and sexual health and decision-making about reproduction without any discrimination, pressure and violence is among teenagers' basic rights[14]. Although some educational programs for topics such as puberty, family life, acquired immune deficiency syndrome (AIDS) and life skills are also available for teenagers, these programs are incomplete and curriculum doesn't encompass sexual education and reproductive[15].

Self-confidence in teenager continued regular daily exercise, balanced diet, and health behaviors during puberty were poor in this study[16]. People with higher self-confidence are more likely to find themselves more motivated to continue to behave in the face of obstacles[17]. On the other hand, constant self-confidence personality traits are dynamic and changeable beliefs and may be enhanced by behavioral interventions. Successful interventions in puberty health self-confidence are also associated with increased self-care behaviors[18]. Therefore, self-confidence seems to be an important and effective precondition for successful self-care behaviors in adolescents[19].

In this study sexual orientation was one of the most important things that teenage boys faced. Teens have a sexual orientation even if they aren't sexually active yet [9, 20]. In most cases, they were not familiar with its management. Teens should be given the opportunity to discuss issues of sexual attraction and orientation, mental health, substance and alcohol use, safer sex, school, family and friends. In fact, education should be available to all teenagers [21–24].

Mood swings are most volatile in early adolescence[15]. Which was observed in the current study in adolescents participating in the study. A study involving 12- to 15-year-olds showed results Forty percent of these adolescents were at high risk for externalizing behaviors (e.g., aggressive or delinquent behavior) at age 12[25]. Using Internet diaries, the teens rated their daily moods in terms of happiness, anger, sadness, and anxiety during three weeks of the school year for five years [29]. Effective communication is essential tool for connecting with the teenager's boy[26]. It is important to start with nonthreatening questions and progress to more sensitive areas So that we can plan according to its demands [27, 28].

## Conclusion

The health of teenager's boy is an important issue. Health need in teenage boy is a big challenge to the health providers, but also important opportunities to connect with them, teach how their bodies changes, and intervene early in teenagers with psychosocial problems such as mood swings, body image or. health providers must be knowledgeable about their common health concerns so that they can anticipate which issues may be important to them and the important and practical point is that the needs are extracted from the adolescents themselves. The health provider's success with teenage boys depends on their ability to take the time to ask the teen about their lives and their skill in communicating with them.

## **Abbreviations**

ENA

Educational Needs Assessment; PH: Puberty Health

## **Declarations**

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### **Authors' Contributions**

All authors were responsible for study. NN and AZ was responsible for the study Conceptualization and led the writing of the paper. AZ, JA and RT conducted the Literature review and assisted in writing the paper. AZ and NN conducted the Statistical analysis, assisted in interpreting the data and writing the paper. AZ and JA assisted with interpretation of the results and drafting programmatic Implications. NN, RT and AZ was responsible for data collection and coordination of the Study. AZ co-led the conceptualization, supervised all aspects of writing the Paper, and provided extensive comments on the manuscript. All the authors have read and approved the final manuscript.

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### **Availability of data and materials**

The datasets using in the study are available from the corresponding author on reasonable request.

### **Ethics approval and consent to participate**

The study was approved by the Research Ethics Committee of Ardabil University of Medical Sciences (Code: IR.AUMS.REC. 1398.657). Written informed consent was obtained from group members. All the procedures performed in the study involving human participants were based on the ethical standards of

the Institutional Research Committee and the Helsinki Declaration and its later amendments or comparable ethical standards.

### Consent to publish

All participants consented verbally to publication of the interview data.

### Competing interests

The authors declare that they have no competing interests.

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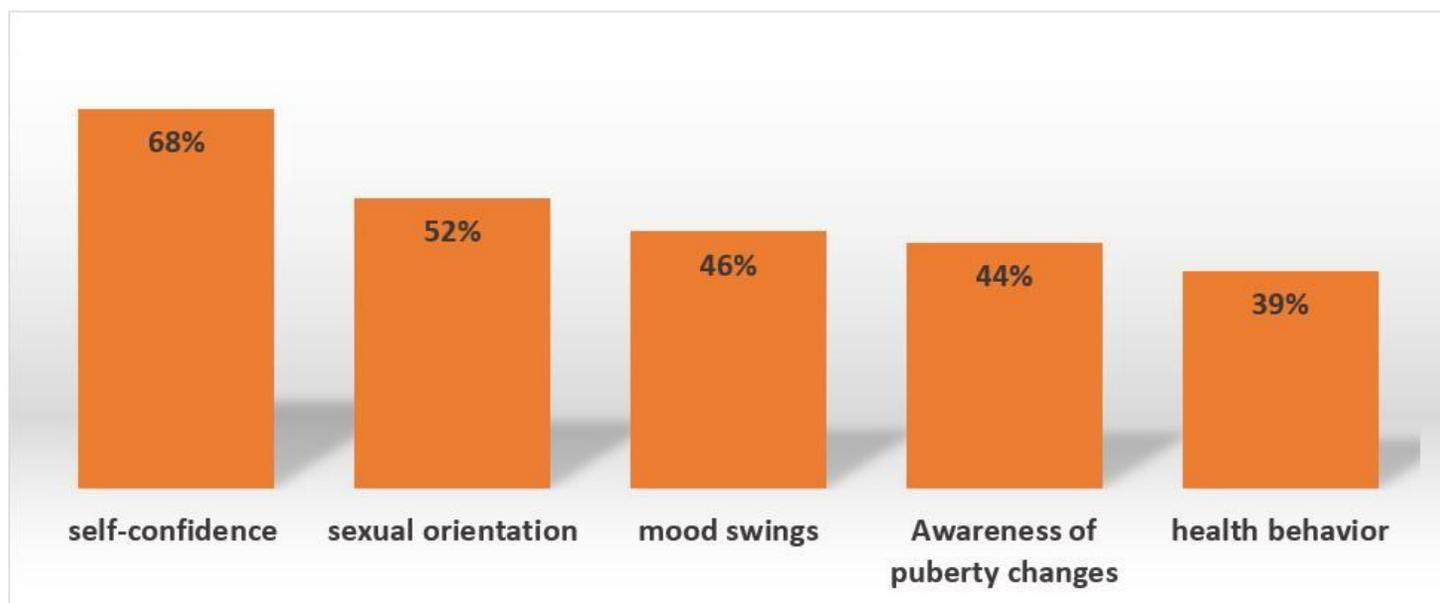
## References

1. Valizade R, Taymoori P, Yousefi FY, Rahimi L, Ghaderi N. The effect of puberty health education based on health belief model on health behaviors and preventive among teen boys in Marivan, north west of Iran. *Int J Pediatr*. 2016;4(8):3271-81.
2. Simbar M, Alizadeh S, Hajifoghaha M, Golezar S. Review of iranian adolescents'educational needs for sexual and reproductive health. *J Isfahan Med Sch*. 2017;34(412):1563-72.
3. Mirzaii Najmabadi K, Babazadeh R, Mousavi S, Shariati M. Iranian adolescent girls' challenges in accessing sexual and reproductive health information and services. *J Health*. 2018;8(5):561-74.
4. Ziapour A, Sharma M, NeJhaddadgar N, Mardi A, Tavafian SS. Educational needs assessment among 10–14-year-old girls about puberty adolescent health of Ardebil. *Arch Public Health*. 2020;78(1):5.
5. Koohestani HR, Roozbahani N, Baghcheghi N. Adolescent boys' lived experience of puberty: A qualitative study. *Iran J Nurs*. 2009;22(57):53-65.
6. Bahari R, AMIN SF, Anoosheh M, Goodarzi A. Knowledge assessment of educational health needs in blind adolescent females during puberty in Tehran. *Military Caring Sci*. 2017;3(4):257-63.
7. Wahba M, Roudi-Fahimi F. The need for reproductive health education in schools in Egypt. Population Reference Bureau. 2012;<https://www.prb.org/wp-content/uploads/2012/10/reproductivehealth-education-egypt.pdf>.
8. Jothy K, Kalaiselvi S. Is menstrual hygiene and management an issue for the rural adolescent school girls. *Elixir Soc Sci*. 2012;44:7223-8.

9. Afshary P, Pazhohideh SZ, Yazdi Zadeh H, Mohammadi S, Tabesh HJJ, Midwifery. Survey educational needs of 11-14 years old Girls about Sexual health. *J Holistic Nurs And Mid.* 2016;26(1):1-9.
10. Organization WH. Standards for sexuality education in Europe: A framework for policy makers, educational and health authorities and specialists. Cologne: Federal Centre for Health Education, BZgA. 2010; [http://www.bzga-whocc.de/?uid=072bde22237db642\\_97daf76b7cb998f0&id=Seite4486](http://www.bzga-whocc.de/?uid=072bde22237db642_97daf76b7cb998f0&id=Seite4486) (Accessed 7 January 2014.).
11. Brooks-Gunn J. The impact of puberty and sexual activity upon the health and education of adolescent girls and boys. *Peabody J Educ.* 1987;64(4):88-112.
12. Dahl RE, Gunnar MR. Heightened stress responsiveness and emotional reactivity during pubertal maturation: implications for psychopathology. *Develop Psychopathology.* 2009;21(1):1-6.
13. Mazloomi Mahmoodabad S, Norouzi S, Norouzi A, Hajizadeh A, Zare A. Effect Of health belief model in adopting prevention and control of health behaviors during puberty high school students in Ardakan City. *Tolooebehdasht.* 2013;12(1):56-66.
14. Torshizi L, Anoosheh M, Ghofranipour F, Ahmadi F, Houshyar-rad A. The effect of education based on health belief model on preventive factors of osteoporosis among postmenopausal women. *Iran J Nurs.* 2009;22(59):71-82.
15. Taghizadeh Moghaddam H, Bahreini A, Ajilian Abbasi M, Fazli F, Saeidi M. Adolescence Health: the needs, problems and attention. *Int J Pediatr.* 2016;4(2):1423-38.
16. Rahimikian F, Mirmohamadali M, Mehran A, Aboozari K, Barough S. Effect of Education Designed based on Health Belief Model on Choosing Delivery Mode. *Hayat.* 2008;14(3-4):25-32.
17. Taga KA, Markey CN, Friedman HS. A longitudinal investigation of associations between boys' pubertal timing and adult behavioral health and well-being. *J Youth Adol.* 2006;35(3):380-90.
18. Behrman RE, Vaughan III VC. *Nelson textbook of pediatrics: WB Saunders company 18th edn.* Philadelphia: WB Saunders Company; 1983.
19. Allen LB, Glick AD, Beach RK, Naylor KE. Adolescent health care experience of gay, lesbian, and bisexual young adults. *J Adol Health.* 1998;23(4):212-20.
20. Smith ER, Damassa DA, Davidson JM. Feedback regulation and male puberty: testosterone-luteinizing hormone relationships in the developing rat. *Endocrinology.* 1977;101(1):173-80.
21. Kauffman AS, Navarro VM, Kim J, Clifton DK, Steiner RA. Sex differences in the regulation of Kiss1/NKB neurons in juvenile mice: implications for the timing of puberty. *American Journal of Physiology-Endocrin Metabol.* 2009;297(5):E1212-E21.
22. Shimada-Niwa Y, Niwa R. Serotonergic neurons respond to nutrients and regulate the timing of steroid hormone biosynthesis in *Drosophila*. *Nature Commun.* 2014;5(1):1-13.
23. Lee JM, Kaciroti N, Appugliese D, Corwyn RF, Bradley RH, Lumeng JC. Body mass index and timing of pubertal initiation in boys. *Arch Pediatr Adol Med.* 2010;164(2):139-44.

24. Ge X, Conger RD, Elder J, Glen H. The relation between puberty and psychological distress in adolescent boys. *J Res Adol.* 2001;11(1):49-70.
25. Eaton DK, Kann L, Kinchen S, Shanklin S, Flint KH, Hawkins J, et al. Youth risk behavior surveillance—United States, 2011. *Morbidity and mortality weekly report: Surveillance Summaries.* 2012;61(4):1-162.
26. Malik VS, Schulze MB, Hu FB. Intake of sugar-sweetened beverages and weight gain: a systematic review. *Am J Clin Nutr.* 2006;84(2):274-88.
27. Kerr M, Stattin H, Burk WJ. A reinterpretation of parental monitoring in longitudinal perspective. *J Res Adol.* 2010;20(1):39-64.
28. Lillycrop KA, Burdge GC. Epigenetic changes in early life and future risk of obesity. *Int J Obesity.* 2011;35(1):72-83.

## Figures



**Figure 1**

Puberty intervention priorities in adolescent boys