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Investigating Parents' Views on Common Beliefs About Children's Height Growth: A Cross-Sectional Study in Iran

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Abstract

Background: Children's height growth is a crucial indicator of health, influenced by parents' beliefs and practices regarding nutrition, physical activity, and sleep. This research aimed to explore parental views on height growth beliefs in families to identify misunderstandings for targeted health education.

Methods: This cross-sectional observational study took place from March to August 2024 at a pediatric outpatient clinic in Mashhad, Iran, involving 200 parents (100 fathers and 100 mothers) of children aged 1 month to 15 years. Data were gathered using a 10-item checklist evaluating beliefs about sports, sedentary activities, sleep, genetics, and nutrition. Statistical analysis included descriptive statistics and chi-square tests to explore the relationship between beliefs and demographic characteristics, such as age and education level.

Results: The majority of parents showed a correct understanding of the benefits of sleep, team sports, and dairy for height growth. However, misconceptions were common, such as associating certain sedentary activities and gymnastics with negative effects on height. Over half believed excess red meat harms growth, and many dismissed the importance of afternoon naps. Fathers' academic education was linked to beliefs about meat, but no significant links were found for mothers' education or age.

Conclusions: Significant gaps exist between evidence-based knowledge and the beliefs of even highly educated Iranian parents. While they value sleep and team sports, misconceptions persist about specific physical activities, red meat consumption, and age-appropriate rest. These findings highlight the need for targeted, culturally sensitive educational interventions to correct misconceptions and promote optimal child growth.

Key Words: Child growth, Height, Health education, Iran, Parental beliefs.

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1- INTRODUCTION

The growth in children's height is a key measure of their health and development, shaped by intricate interactions between genetic factors, nutrition, environmental influences, and socioeconomic circumstances (1). Although genetic elements are responsible for roughly 60-80% of a person's eventual height, adjustable environmental factors play a crucial role in reaching the best growth potential, especially during vital developmental phases in childhood and adolescence (2).

Parental beliefs and attitudes about their children's development significantly influence caregiving practices, food choices, activity levels, and decisions regarding healthcare. These beliefs have a direct impact on everyday activities, dietary habits, physical exercise engagement, and sleeping patterns—all of which are recognized as key factors for healthy growth (3). However, many parents often depend on traditional knowledge, cultural customs, or unreliable information sources when making choices about their children's growth and development. Prior studies have pointed out notable discrepancies between evidence-based guidelines and parental behaviors in pediatric care (4, 5). Research shows that misunderstandings about growth factors can lead to inappropriate actions, such as unnecessary dietary limitations, avoiding beneficial physical activities, or excessive supplementation. On the other hand, failing to recognize established growth factors may lead to missed chances for enhancing growth during vital developmental periods (6, 7).

In developing nations, where there may be limited access to trustworthy health information and traditional beliefs heavily influence parenting methods, it is particularly important to understand the viewpoints of parents. Cultural perceptions regarding elements that impact height growth—such as views on certain exercises, dietary habits, sleep routines, and genetic influences—can greatly affect the health outcomes of children (8, 9). Although the connection between parental education, socioeconomic status, and health beliefs has been well documented across different settings, there is a scarcity of research specifically addressing parents' beliefs about height growth factors. Understanding these beliefs is essential for creating targeted educational programs and improving pediatric healthcare services.

We aim to investigate parental perspectives on common beliefs regarding children's height growth among families visiting a pediatric clinic in Mashhad, Iran. By examining how these beliefs are distributed and their correlations with parental demographic characteristics, we seek to identify knowledge gaps and develop evidence-based educational strategies to enhance optimal child growth and development.

2- MATERIALS AND METHODS

2-1. Study Design and Setting

This cross-sectional observational study was conducted at the pediatric outpatient clinic of 22 Bahman Hospital in Mashhad, Iran, from March to August 2024. The study aimed to explore parental beliefs regarding the factors influencing children’s height growth among families seeking pediatric healthcare services.

2-2. Participants

The target population included all parents of children aged 1 month to 15 years who attended the pediatric clinic during the study period. Parents were eligible for inclusion if they were the primary caregivers of children within the specified age range and provided informed consent for participation. Exclusion criteria entailed parents with cognitive impairments that would hinder the completion of the checklist, non-Persian

speakers, and those unwilling to take part in the study. Participants were consecutively recruited as they presented to the clinic throughout the data collection period.

2-3. Data Collection

Data were gathered using a structured checklist developed by the researchers, which consisted of two main sections. The demographic data collected included parental age, educational level (categorized as academic versus non-academic), and the relationship of the participant to the child.

A 10-item checklist was developed to assess common parental beliefs about children's height growth, drawing from literature and clinical experience. Each item was presented as a clear statement requiring a response of "Agree," "Disagree," or "No opinion." The topics covered a wide range of perceptions, including the impact of gymnastics and the benefits of team sports (such as volleyball, basketball, and swimming). Other items examined were the effects of chess and computer games, the necessity of regular daily exercise and proper nutrition, the importance of regular and adequate sleep, the advantages of supplements (like zinc and vitamin D), and the influence of carbonated beverage consumption. Finally, the checklist also probed beliefs regarding the role of parental genetics and whether the height of a first child influences the height trajectory of subsequent children.

Data collection occurred through face-to-face interviews conducted at the clinic. Following the acquisition of written informed consent, participants were interviewed with each interview lasting approximately 10-15 minutes. The checklist was completed in a private setting to ensure confidentiality and minimize response bias. The data were double-entered and verified for accuracy before analysis.

2-4. Statistical Analysis

Data analysis was conducted using IBM SPSS Statistics version 16.0. Descriptive statistics were reported as means and standard deviations for continuous variables, and as frequencies with percentages for categorical variables. The Kolmogorov-Smirnov test with Lilliefors correction was employed to assess the normality of continuous data. For inferential statistics, chi-square tests were used to explore associations between categorical variables, while Fisher's exact test was applied when more than 20% of expected cell frequencies fell below 5, in accordance with Cochran's criterion. Pearson or Spearman correlation coefficients were calculated to assess relationships between continuous variables, with the choice depending on the distribution characteristics of the data. A significance level of $p < 0.05$ was set for all analyses.

2-5. Ethical Considerations

The study protocol received approval from the Ethics Committee of the Faculty of Medicine at the Islamic Azad University, Mashhad Medical Sciences. (IR.IAU.MSHD.REC.1402.202). All participants provided written informed consent after being thoroughly informed about the study's objectives, procedures, and their right to withdraw at any time. We ensured the confidentiality of patients throughout the study, and no personal identifiers were recorded. Participation was entirely voluntary, and no financial obligations were imposed on participants or their families.

3-RESULT

3-1. Demographic Characteristics

This cross-sectional study included 200 parents (100 fathers and 100 mothers) of children aged 1 month to 15 years presenting to the pediatric outpatient clinic at 22 Bahman Hospital in Mashhad. The

mean age of fathers was 41.54 ± 5.84 years and mothers was 37.95 ± 5.36 years. In terms of educational attainment, most participants had academic education, with 80% of fathers (n=80) and 88% of mothers (n=88) falling into this category. Only 20% of fathers and 12% of mothers had non-academic education (Table 1).

3-2.Distribution of Parental Beliefs

Analysis of parental beliefs regarding factors affecting height growth revealed distinct patterns across the study population. Strong evidence-based understanding was demonstrated for sleep and team sports, with 94% and 95% of parents respectively recognizing their positive effects on height development. However, significant misconceptions emerged in several areas. Most notably, 87% of parents incorrectly believed sedentary activities such as swimming and rope jumping positively influence height growth, while 43% considered gymnastics harmful to height development. Regarding red meat consumption, 52% believed excessive intake negatively affects height growth, while 31% disagreed. Additionally, 77% acknowledged the benefits of zinc and arginine supplementation. Concerning nutrition's broader role, only 27% of parents recognized lack of afternoon naps as having negative effects on height growth, with 64% dismissing its importance. Strong consensus existed on dairy consumption's benefits, with 94% of parents recognizing its positive impact. Divided opinions existed regarding onion consumption's effects on early puberty (37% agreement), and genetic determinism in height outcomes (44% agreement). Only 8% believed the first child's height determines subsequent children's height, indicating appropriate understanding in this domain (Table 2).

3-3. Association Between Parental Education, Age and Their Beliefs

Table-1. Demographic characteristics of study participants.

Variable	Fathers (n=100)	Mothers (n=100)
Age (years)		
Mean ± SD	41.54 ± 5.84	37.95 ± 5.36
Range	29-63	25-57
Educational level, n (%)		
Academic	80 (80.0)	88 (88.0)
Non-academic	20 (20.0)	12 (12.0)

Table-2. Distribution of parental beliefs about factors affecting children's height growth.

	Belief item	Agree n (%)	Disagree n (%)	No opinion n (%)
1	Gymnastics has negative effects on height growth	43 (43.0)	51 (51.0)	6 (6.0)
2	Sports like volleyball and basketball are beneficial	95 (95.0)	4 (4.0)	1 (1.0)
3	Sports like swimming and rope jumping are beneficial	87 (87.0)	4 (4.0)	9 (9.0)
4	Excessive red meat consumption has a negative effect	52 (52.0)	31 (31.0)	17 (17.0)
5	Supplements like zinc and arginine are beneficial	77 (77.0)	14 (14.0)	9 (9.0)
6	Not having a noon nap has a negative effect	27 (27.0)	64 (64.0)	9 (9.0)
7	Daily consumption of milk and dairy is beneficial	94 (94.0)	6 (6.0)	0 (0.0)
8	Onion consumption causes early puberty and reduces height	37 (37.0)	25 (25.0)	38 (38.0)
9	If parents are short, their children will definitely be short	44 (44.0)	55 (55.0)	1 (1.0)
10	If the first child is short, subsequent children will also be short	8 (8.0)	87 (87.0)	5 (5.0)

Table-3. Association between parental education and selected beliefs about height growth.

Belief Item	Father's education			Mother's education		
	Academic (n=80) n (%)	Non-academic (n=20) n (%)	p-value	Academic (n=88) n (%)	Non-academic (n=12) n (%)	p-value
1. Gymnastics has negative effects on height growth			**0.8**			**0.4**
- Agree (Incorrect View)	42 (52.5%)	9 (45.0%)		47 (53.4%)	4 (33.3%)	
- Disagree (Correct View)	33 (41.3%)	10 (50.0%)		36 (40.9%)	7 (58.3%)	
- No opinion	5 (6.3%)	1 (5.0%)		5 (5.7%)	1 (8.3%)	
2. Sports like volleyball and basketball are beneficial			**0.3**			**0.5**
- Agree (Correct View)	75 (93.8%)	20 (100%)		83 (94.3%)	12 (100%)	
- Disagree (Incorrect View)	4 (5.0%)	0 (0.0%)		4 (4.5%)	0 (0.0%)	
- No opinion	1 (1.3%)	0 (0.0%)		1 (1.1%)	0 (0.0%)	
3. Sports like swimming and rope jumping are beneficial			**0.6**			**0.2**
- Agree (Correct View)	68 (85.0%)	19 (95.0%)		75 (85.2%)	12 (100%)	
- Disagree (Incorrect View)	4 (5.0%)	0 (0.0%)		4 (4.5%)	0 (0.0%)	
- No opinion	8 (10.0%)	1 (5.0%)		9 (10.2%)	0 (0.0%)	
4. Excessive red meat consumption has a negative effect			**0.01***			**0.37**
- Agree (Incorrect View)	18 (22.5%)	6 (30.0%)		48 (54.5%)	4 (33.3%)	
- Disagree (Correct View)	46 (57.5%)	12 (60.0%)		25 (28.4%)	6 (50.0%)	
- No opinion	15 (18.8%)	2 (10.0%)		15 (17.0%)	2 (16.7%)	
5. Supplements like zinc and arginine are beneficial			**0.3**			**0.08**
- Agree (Correct View)	63 (78.8%)	14 (70.0%)		71 (80.7%)	6 (50.0%)	
- Disagree (Incorrect View)	9 (11.3%)	5 (25.0%)		10 (11.4%)	4 (33.3%)	
- No opinion	8 (10.0%)	1 (5.0%)		7 (8.0%)	2 (16.7%)	
6. Not having a noon nap has a negative effect			**0.12**			**0.19**
- Agree (Incorrect View)	54 (67.5%)	10 (50.0%)		57 (64.8%)	7 (58.3%)	
- Disagree (Correct View)	18 (22.5%)	9 (45.0%)		22 (25.0%)	5 (41.7%)	
- No opinion	8 (10.0%)	1 (5.0%)		9 (10.2%)	0 (0.0%)	
7. Daily consumption of milk and dairy is beneficial			**0.3**			**0.77**
- Agree (Correct View)	74 (92.5%)	20 (100%)		82 (93.2%)	12 (100%)	
- Disagree (Incorrect View)	6 (7.5%)	0 (0.0%)		6 (6.8%)	0 (0.0%)	
- No opinion	0 (0.0%)	0 (0.0%)		0 (0.0%)	0 (0.0%)	
8. Onion consumption causes early puberty and reduces height			**0.7**			**0.3**
- Agree (Incorrect View)	19 (23.8%)	6 (30.0%)		22 (25.0%)	3 (25.0%)	
- Disagree (Correct View)	29 (36.3%)	8 (40.0%)		30 (34.1%)	7 (58.3%)	
- No opinion	32 (40.0%)	6 (30.0%)		36 (40.9%)	2 (16.7%)	
9. If parents are short, their children will definitely be short	35 (43.8%)	9 (45.0%)	**0.8**	36 (40.9%)	8 (66.7%)	**0.2**
- Agree (Incorrect View)	44 (55.0%)	11 (55.0%)		51 (58.0%)	4 (33.3%)	
- Disagree (Correct View)	1 (1.3%)	0 (0.0%)		1 (1.1%)	0 (0.0%)	
- No opinion						
10. If the first child is short, subsequent children will also be short	69 (86.3%)	18 (90.0%)	**0.67**	78 (88.6%)	9 (75.0%)	**0.08**
- Agree (Incorrect View)	6 (7.5%)	2 (10.0%)		5 (5.7%)	3 (25.0%)	
- Disagree (Correct View)	5 (6.3%)	0 (0.0%)		5 (5.7%)	0 (0.0%)	
- No opinion						

Table-4. Association between parental age and selected beliefs about height growth.

Belief Item	Father's Age			Mother's Age		
	≤40 (n=45) n (%)	>40 (n=55) n (%)	p-value	≤40 (n=71) n (%)	>40 (n=29) n (%)	p-value
1. Gymnastics has negative effects on height growth			**0.3**			**0.7**
- Agree (Incorrect View)	25 (55.6%)	26 (47.3%)		37 (52.1%)	14 (48.3%)	
- Disagree (Correct View)	16 (35.6%)	27 (49.1%)		29 (40.8%)	14 (48.3%)	
- No opinion	4 (8.9%)	2 (3.6%)		5 (7.0%)	1 (3.4%)	
2. Sports like volleyball and basketball are beneficial			**0.5**			**0.9**
- Agree (Correct View)	43 (95.6%)	52 (94.5%)		67 (94.4%)	28 (96.6%)	
- Disagree (Incorrect View)	1 (2.2%)	3 (5.5%)		3 (4.2%)	1 (3.4%)	
- No opinion	1 (2.2%)	0 (0.0%)		1 (1.4%)	0 (0.0%)	
3. Sports like swimming and rope jumping are beneficial			**0.9**			**0.7**
- Agree (Correct View)	39 (86.7%)	48 (87.3%)		62 (87.3%)	25 (86.2%)	
- Disagree (Incorrect View)	2 (4.4%)	2 (3.6%)		2 (2.8%)	2 (6.9%)	
- No opinion	4 (8.9%)	5 (9.1%)		7 (9.9%)	2 (6.9%)	
4. Excessive red meat consumption has a negative effect			**0.11**			**0.5**
- Agree (Correct View)	15 (33.3%)	16 (29.1%)		24 (33.8%)	7 (24.1%)	
- Disagree (Incorrect View)	19 (42.2%)	33 (60.0%)		34 (47.9%)	18 (62.1%)	
- No opinion	11 (24.4%)	6 (10.9%)		13 (18.3%)	4 (13.8%)	
5. Supplements like zinc and arginine are beneficial			**0.06**			**0.77**
- Agree (Correct View)	30 (66.7%)	47 (85.5%)		54 (76.1%)	23 (79.3%)	
- Disagree (Incorrect View)	10 (22.2%)	4 (7.3%)		11 (15.5%)	3 (10.3%)	
- No opinion	5 (11.1%)	4 (7.3%)		6 (8.5%)	3 (10.3%)	
6. Not having a noon nap has a negative effect			**0.9**			**0.3**
- Agree (Incorrect View)	29 (64.4%)	35 (63.6%)		48 (67.6%)	16 (55.2%)	
- Disagree (Correct View)	12 (26.7%)	15 (27.3%)		16 (22.5%)	11 (37.9%)	
- No opinion	4 (8.9%)	5 (9.1%)		7 (9.9%)	2 (6.9%)	
7. Daily consumption of milk and dairy is beneficial			**0.6**			**0.46**
- Agree (Correct View)	43 (95.6%)	51 (92.7%)		68 (95.8%)	26 (89.7%)	
- Disagree (Incorrect View)	2 (4.4%)	4 (7.3%)		3 (4.2%)	3 (10.3%)	
- No opinion	0 (0.0%)	0 (0.0%)		0 (0.0%)	0 (0.0%)	
8. Onion consumption causes early puberty and reduces height			**0.9**			**0.6**
- Agree (Incorrect View)	12 (26.7%)	13 (23.6%)		16 (22.5%)	9 (31.0%)	
- Disagree (Correct View)	17 (37.8%)	20 (36.4%)		26 (36.6%)	11 (37.9%)	
- No opinion	16 (35.6%)	22 (40.0%)		29 (40.8%)	9 (31.0%)	
9. If parents are short, their children will definitely be short			**0.26**			**0.33**
- Agree (Incorrect View)	17 (37.8%)	27 (49.1%)		28 (39.4%)	16 (55.2%)	
- Disagree (Correct View)	27 (60.0%)	28 (50.9%)		42 (59.2%)	13 (44.8%)	
- No opinion	1 (2.2%)	0 (0.0%)		1 (1.4%)	0 (0.0%)	
10. If the first child is short, subsequent children will also be short			**0.1**			**0.12**
- Agree (Incorrect View)	43 (95.6%)	44 (80.0%)		65 (91.5%)	22 (75.9%)	
- Disagree (Correct View)	1 (2.2%)	7 (12.7%)		4 (5.6%)	4 (13.8%)	
- No opinion	1 (2.2%)	4 (7.3%)		2 (2.8%)	3 (10.3%)	

Analysis of the relationship between parental educational level and beliefs revealed a significant association between fathers' educational attainment and their attitudes toward red meat consumption (p=0.01). Fathers with academic education (30%) were more likely to view excessive red meat consumption as harmful compared to those with non-academic education, where opinions were more evenly divided (30% agree, 30% disagree). No significant associations were found between maternal education and any of the assessed beliefs (p>0.05) (Table 3).

Analysis of the relationship between parental age and beliefs revealed no statistically significant associations. Parents across different age groups (≤40 years and >40 years) demonstrated similar distributions of beliefs (p>0.05 for all comparisons) (Table 4).

4- DISCUSSION

We examined important patterns in parental beliefs about factors affecting children's height growth, identifying areas where we have an accurate understanding and those with persistent misconceptions. We found that while we generally acknowledge the significance of sleep and specific physical activities, significant knowledge gaps exist in other crucial areas, particularly concerning the role of gymnastics, the effects of sedentary versus active pursuits, and nutritional factors.

The high acceptance rate (94%) for the role of adequate sleep and the recognition (95%) of the benefits of team sports reflect appropriate understanding. Similarly, the belief that dairy consumption positively affects growth (94% agreement) aligns with established pediatric nutrition evidence. The recognition of supplement benefits (77% for zinc and vitamin D) also demonstrates reasonable awareness in this domain (10-12). However, critical misconceptions emerged. The finding that 43% consider gymnastics harmful represents another significant misconception, as moderate gymnastics participation offers documented benefits for bone density and overall fitness. Most concerning is the finding that 52% of parents viewed red meat consumption as negatively affecting height growth. This pattern suggests confusion about basic nutritional and rest requirements for optimal growth (13, 14).

The high educational attainment in our sample (80% of fathers and 88% of mothers with academic education) contrasts with assumptions about educational barriers to health knowledge. Previous research has often linked lower parental education with misconceptions about child health (15). However, our findings demonstrate that even highly educated parents harbor significant misconceptions about growth factors, suggesting that formal education alone does not guarantee accurate health beliefs.

The absence of associations between maternal education and beliefs, despite mothers' high educational levels, suggests that health beliefs may be shaped more by cultural transmission and community norms than by individual educational attainment. This finding has important implications for intervention design, as it suggests that educational programs must address culturally embedded beliefs that transcend individual education levels.

Clinical and Public Health Implications: The belief patterns identified in this research, characterized by high educational levels yet ongoing misunderstandings, underscore the urgent necessity for targeted, evidence-based education for parents that extends beyond basic health literacy. Healthcare professionals should focus on: 1. Clarifying the difference between beneficial physical activities (such as well-structured gymnastics, swimming, and rope jumping) and genuinely sedentary behaviors. 2.

Addressing misconceptions surrounding red meat consumption, stressing that moderate amounts are essential for providing important nutrients necessary for growth. 3. Emphasizing the vital role of sufficient sleep (both nighttime and appropriate daytime rest) for the secretion of growth hormones. 4. Correcting the tendency to undervalue complete nutrition while appropriately framing the use of supplements.

Strengths and Limitations: This research offers important quantitative insights from a mostly educated urban demographic, highlighting that misunderstandings continue to exist even among individuals with higher levels of education. The use of standardized assessment tools and suitable statistical approaches enhances the findings. Nonetheless, the primarily academic background of the participants restricts the applicability of the results to groups with lower educational achievement, where misconceptions might be more widespread or manifest in different ways. Conducting the study at a single urban hospital and using convenience sampling may lead to selection bias. The cross-sectional nature of the study restricts the ability to draw causal conclusions, and the moderate sample size calls for caution in extrapolating the results. Future studies should focus on larger, multi-center research that includes a wider range of educational and socioeconomic levels to more effectively describe the connections between education, cultural influences, and health beliefs.

5- CONCLUSION

This study provides strong evidence of a notable gap between evidence-based pediatric knowledge and parental health beliefs, which persists even among a well-educated urban demographic. While parents rightly recognize the critical role of sufficient sleep, participation in team sports, and dairy intake for growth, significant misunderstandings remain common in areas vital for maximizing growth potential. The ongoing existence of these misconceptions creates a major obstacle to achieving optimal health outcomes for children. This is especially alarming, as the overestimation of the educational level within the sample underscores a key point: formal education alone does not ensure the presence of accurate health beliefs. It is clear that health knowledge is significantly shaped by strong cultural influences and community standards that go beyond individual academic qualifications.

6- CONFLICT OF INTEREST

The authors have declared that they have no competing interests.

7- FUNDING

This research did not receive any external funding.

8- DATA AVAILABILITY STATEMENT

The data supporting the findings of this study are available from the corresponding author upon reasonable request.

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