JHWCR

Journal of Health, Wellness, and Community Research
Volume III, Issue VIII
Open Access, Double Blind Peer Reviewed.
Web: https://jhwcr.com, ISSN: 3007-0570
https://doi.org/10.61919/43xxyc34

Original Article

Parental Perception of Short Stature Versus Actual Stature of Their Children

Shehnila Mohsin[1], Muhammad Faisal Shafique[1], Anam Qureshi[1], Samia Mazhar[1], Shafaq Batool[1], Sahar Fatima[1]

[1] Combined Military Hospital, Multan, Pakistan

Correspondence: zara.rauf128@gmail.com
Author Contributions: Concept: SM; Design: MFS; Data Collection: AQ; Analysis: SMZ; Drafting: SB
Cite this Article | Received: 2025-05-11 | Accepted 2025-07-04
No conflicts declared; ethics approved; consent obtained; data available on request; no funding received.

ABSTRACT

Background: Parental perception of a child's height plays a critical role in growth monitoring and early identification of growth disorders. However, subjective assessments may not align with standardized clinical measurements, potentially delaying diagnosis and intervention. Socio-demographic factors, particularly parental education, may influence the accuracy of these perceptions. Objective: To evaluate the concordance between parental perception of child height and actual height based on standardized growth charts, and to assess the impact of parental education on perception accuracy. Methods: A cross-sectional observational study was conducted at a tertiary care pediatric outpatient department, including 120 children aged 5–15 years and their biological parents. Parental perception of height was collected via structured questionnaire, categorizing children as "short," "average," or "tall." Actual height was measured using a stadiometer and classified using WHO growth percentiles. Data were analysed using SPSS v26.0 with chi-square tests, Pearson correlation, and odds ratios to assess associations. Results: While 75.0% of children had normal stature, only 62.5% were perceived as average. Among short-stature children, 33.3% were misclassified. Higher parental education significantly improved perception accuracy ($p = 0.032$; OR for higher education: 3.99, 95% CI: 1.28–12.42). A moderate positive correlation ($r = 0.56$, $p < 0.001$) was found between actual height percentile and perception score. Conclusion: Parental perception often deviates from objective height assessments, especially among less-educated caregivers. Targeted education on growth standards may enhance early detection of pediatric growth concerns. Keywords: child growth, parental perception, short stature, height measurement, growth charts, pediatric assessment, health literacy.

Keywords: Parental perception, short stature, actual height, child growth, pediatric assessment, height misperception, growth monitoring, parental awareness

INTRODUCTION

Childhood growth is a critical indicator of overall health and development, and monitoring height during the early years plays a pivotal role in identifying potential growth disorders or systemic illnesses (1). Parents are often the first to observe changes in their children's growth patterns and play a central role in seeking medical attention when deviations occur. However, the subjective nature of parental observations, influenced by cultural norms, peer comparisons, and societal ideals, may not always reflect objective growth metrics. Parents often assess their child's height based on visible comparisons within peer groups, family expectations, and media representations, which may be misleading or inconsistent with clinical growth standards (2,3). Height, in many societies, is symbolically associated with success, health, and social competence, further amplifying parental concern when a child is perceived to fall below normative expectations (4).

Although pediatricians routinely use standardized growth charts to objectively evaluate child stature by comparing anthropometric data to age- and gender-specific percentiles, such data are often underutilized by caregivers, who may lack the necessary knowledge or access to interpret these tools accurately (5,6). Inaccurate parental perceptions can delay the identification and management of growth-related disorders. For example, parents may either overestimate or underestimate their child's height, potentially overlooking clinically relevant short stature or generating undue anxiety over normal variations in height (7). The implications of such perceptual discrepancies are not merely medical but also psychological; studies have shown that mislabeling a child as short or tall can adversely influence their self-esteem, social interactions, and academic performance (8). Moreover, these perceptions can influence healthcare-seeking behaviors and parental compliance with treatment recommendations, thereby affecting health outcomes (9).

Several studies have attempted to quantify the accuracy of parental perception in various pediatric domains, such as weight status or behavioral development, but fewer have rigorously examined this question in the context of height. A study by Collett-Solberg et al. demonstrated that many parents of short children did not perceive their child to have short stature, indicating a disconnect between clinical data and parental awareness (10). Similarly, Ahmed and El Abd Elsalam found that over 85% of mothers with children clinically diagnosed with short stature believed their child's growth was normal, especially in settings with limited health literacy (11). These findings highlight

a consistent pattern of perceptual inaccuracy, particularly in resource-constrained or culturally complex environments. However, most available research has either focused narrowly on clinical populations or lacked comprehensive demographic analyses, such as the role of parental education, that might mediate perception accuracy.

This gap in understanding is especially relevant in multicultural, developing country settings, where diverse height norms, socioeconomic factors, and varying levels of health literacy intersect. There remains limited empirical data from South Asian populations that explore how accurately parents perceive their child's height in relation to actual growth chart assessments, and how socio-demographic variables influence this accuracy. Given the psychological and medical consequences of delayed identification of short stature, it is vital to bridge this knowledge gap through methodologically robust studies.

Thus, the present study aims to evaluate the discrepancy between parental perception of their children's height and actual stature measured against standardized growth charts in a tertiary care setting. It further seeks to determine the association between parental education level and perception accuracy, as well as the correlation between actual height percentiles and subjective parental assessments. By addressing these objectives, the study intends to inform future educational interventions that may improve parental awareness and early recognition of abnormal growth trajectories. The central research question guiding this study is: To what extent does parental perception of their child's height align with standardized growth chart assessments, and what demographic factors influence this perceptual accuracy?

MATERIAL AND METHODS

This study employed a cross-sectional observational design to assess the accuracy of parental perception regarding their child's height compared with objective anthropometric measurements, and to evaluate factors associated with perceptual accuracy. The rationale for this design stems from the study's aim to establish prevalence and correlation measures at a single point in time, without inferring causality. The study was conducted in the pediatric outpatient department of a tertiary care hospital over a defined period from June to December 2024, ensuring representation across seasonal variation which could influence clinic attendance patterns.

Participants were selected using a non-probability consecutive sampling technique. Eligible participants included children aged 5 to 15 years accompanied by at least one biological parent or guardian. Children with documented chronic illnesses, genetic syndromes, endocrine disorders, or any previous interventions affecting growth—such as growth hormone therapy or nutritional supplementation—were excluded to eliminate confounding effects on stature. Recruitment was facilitated through direct approach at the outpatient triage counter, where parents were informed of the study's objectives, procedures, and voluntary nature. Written informed consent was obtained from each parent prior to participation, and assent was obtained from children when age-appropriate, in compliance with ethical standards approved by the Institutional Review Board of the hospital.

Following consent, data collection was conducted in two sequential stages. In the first stage, a structured questionnaire was administered to the parents by a trained research assistant in a private consultation room to minimize response bias. The questionnaire captured demographic variables including parental education level (categorized as less than secondary, secondary, or higher education), parental age, and child's age and gender. The primary independent variable—parental perception of child height—was assessed using a single-item categorical scale asking the parent to rate their child as "short," "average," or "tall" based on personal judgment and contextual comparisons. This scale was developed based on prior validated parental perception tools used in similar studies on weight and height perception (12,13).

In the second stage, children underwent height measurement performed by a trained pediatric resident using a standardized wall-mounted stadiometer (SECA 213). Each child was measured three times in a consistent position: standing barefoot with heels, buttocks, shoulders, and occiput aligned against the stadiometer, and head positioned in the Frankfort horizontal plane. The mean of the three measurements was used as the final height value to ensure precision and reduce measurement variability. Actual stature was classified using World Health Organization (WHO) reference growth charts, stratified by age and gender. Children below the 5th percentile were categorized as having short stature, between the 5th and 95th percentile as normal stature, and above the 95th percentile as tall stature (14). The dependent variable—perception accuracy—was derived by comparing parental perception category with the child's actual height category. Responses were labeled as "accurate" if the perceived and actual categories matched and "inaccurate" otherwise.

To minimize measurement and classification bias, all height assessments were performed by the same trained clinician using a single device calibrated daily. The research assistant administering questionnaires was blinded to the child's measured height. All data were anonymized and entered into a secure password-protected database by dual-entry to ensure accuracy and integrity. Missing data were handled using listwise deletion during analysis, as the proportion of missing entries was under 5%. Sample size was calculated using OpenEpi version 3.01, powered at 80% with a 95% confidence level, to detect a medium effect size in agreement between perceived and actual height categories, resulting in a minimum requirement of 110 subjects. To account for potential dropouts or incomplete responses, a final sample of 120 participants was targeted and achieved.

Data analysis was performed using IBM SPSS Statistics Version 26. Descriptive statistics were used to summarize demographic variables, including frequencies, means, and standard deviations. The agreement between perceived and actual height categories was assessed using the chi-square test. A paired t-test was used to evaluate the mean differences between perceived and actual height scores. Correlation between the actual height percentile and the parental perception score (coded as 1 for short, 2 for average, and 3 for tall) was assessed using Pearson's correlation coefficient. The relationship between parental education level and accuracy of perception was evaluated using cross-tabulation and chi-square testing. A p-value of less than 0.05 was considered statistically significant. No subgroup analyses were pre-specified beyond stratification by parental education level, as this was the main variable of interest linked to the research hypothesis.

The study adhered strictly to the principles outlined in the Declaration of Helsinki, with full ethical oversight. Confidentiality was upheld throughout the study, and identifiers were removed from the dataset prior to analysis. All protocols and data management steps were documented to allow for full reproducibility by future researchers. The procedures followed in this study ensure rigorous control of bias, accuracy in data capture, and robustness in analytical methodology, aligned with international best practices for observational pediatric health research.

RESULTS

A total of 120 children participated in the study, with a slight male predominance (54.2%, n = 65) compared to females (45.8%, n = 55). The largest proportion of children were aged 9–12 years (41.7%, n = 50), followed by those aged 5–8 years (33.3%, n = 40), and 13–15 years (25.0%, n = 30). Regarding parental education, 27.5% (n = 33) had less than secondary education, 43.3% (n = 52) had completed secondary education, and 29.2% (n = 35) had higher education, with respective 95% confidence intervals confirming these proportions within the source population.

When parents were asked to categorize their child's height, the majority—62.5% (n = 75, 95% CI: 53.4–71.0)—perceived their child as being of average height. One quarter (25.0%, n = 30, 95% CI: 17.8–33.7) perceived their child as short, and only 12.5% (n = 15, 95% CI: 7.2–19.8) believed their child was tall. However, when assessed objectively using standardized growth charts, 75.0% (n = 90, 95% CI: 66.3–82.2) of children fell within the normal stature range (5th–95th percentile), while 15.0% (n = 18, 95% CI: 9.1–22.5) met criteria for short stature (<5th percentile) and 10.0% (n = 12, 95% CI: 5.3–16.8) were classified as tall stature (>95th percentile).

Table 1. Demographic Characteristics of Study Participants (n = 120)

Variable	Category	Frequency (n)	Percentage (%)	95% CI (%)
Child's Gender	Male	65	54.2	45.0 – 63.1
	Female	55	45.8	36.9 – 55.0
Child's Age Group (years)	5–8	40	33.3	25.0 – 42.5
	9–12	50	41.7	32.8 – 51.1
	13–15	30	25.0	17.8 – 33.7
Parental Education Level	< Secondary	33	27.5	19.9 – 36.4
	Secondary	52	43.3	34.1 – 52.9
	Higher Education	35	29.2	21.3 – 38.3

Table 2. Parental Perception of Child's Height (n = 120)

Perceived Height	Frequency (n)	Percentage (%)	95% CI (%)
Short	30	25.0	17.8 – 33.7
Average	75	62.5	53.4 – 71.0
Tall	15	12.5	7.2 – 19.8

Table 3. Actual Height Categories Based on Growth Charts (n = 120)

Actual Stature	Frequency (n)	Percentage (%)	95% CI (%)
Short Stature (<5th percentile)	18	15.0	9.1 – 22.5
Normal Stature (5th–95th)	90	75.0	66.3 – 82.2
Tall Stature (>95th)	12	10.0	5.3 – 16.8

Table 4. Comparison of Parental Perception and Actual Child Stature (n = 120)

Perception	Actual Short (n=18)	Actual Normal (n=90)	Actual Tall (n=12)	Chi-square (df=4)	p-value	OR [95% CI]
Perceived Short	12 (66.7%)	18 (20.0%)	0 (0%)			
Perceived Average	6 (33.3%)	66 (73.3%)	3 (25.0%)	38.22	<0.001	8.22 [2.65–25.45]
Perceived Tall	0 (0%)	6 (6.7%)	9 (75.0%)			

Table 5. Association Between Parental Education Level and Accuracy of Height Perception (n = 120)

Parental Education	Accurate Perception (n)	Inaccurate Perception (n)	% Accurate	OR [95% CI]	p-value
< Secondary	18	15	54.5	Reference	
Secondary	40	12	76.9	2.78 [1.04–7.47]	
Higher Education	29	6	82.9	3.99 [1.28–12.42]	0.032

Chi-square test for trend, OR for accurate perception relative to < Secondary group.

Comparison of parental perception with actual measured stature revealed notable discrepancies. Among the 18 children objectively classified as having short stature, only two-thirds (66.7%, n = 12) were correctly identified as short by their parents, while one-third (33.3%, n = 6) were instead perceived as average height. Strikingly, none of the short-stature children were perceived as tall. In the normal stature group (n = 90), most parents (73.3%, n = 66) correctly perceived their child's height as average, but 20.0% (n = 18) underestimated and classified them as short, and 6.7% (n = 6) overestimated and classified them as tall. For the 12 children in the tall stature category, three-quarters (75.0%, n = 9) were accurately perceived as tall, while a quarter (25.0%, n = 3) were perceived as average. The association between perception and actual height category was statistically significant (chi-square = 38.22, $p < 0.001$), and the odds of a parent perceiving their child as short if the child was actually short were 8.2 times higher (OR: 8.22, 95% CI: 2.65–25.45) compared to children not in the short stature group.

Parental education showed a clear influence on perception accuracy. Among parents with less than secondary education, 54.5% (n = 18) accurately perceived their child's stature, whereas accuracy rose to 76.9% (n = 40) among those with secondary education and 82.9% (n = 29) among parents with higher education. The odds of accurate perception increased with educational attainment (secondary: OR 2.78, 95% CI: 1.04–7.47; higher education: OR 3.99, 95% CI: 1.28–12.42, p = 0.032).

A moderate positive correlation was found between actual height percentile and parental perception score (r = 0.56, 95% CI: 0.41–0.68, p < 0.001), indicating that as a child's actual height percentile increased, so too did the likelihood of parents perceiving their child as taller. These quantitative findings underscore substantial gaps between subjective parental perception and objective measures, as well as the moderating role of parental education on perception accuracy.

Table 6. Correlation Between Actual Height Percentile and Parental Perception Score

Variable Comparison	Correlation Coefficient (r)	95% CI	p-value
Actual Height Percentile vs. Perception	0.56	0.41–0.68	<0.001

Pearson's correlation coefficient.

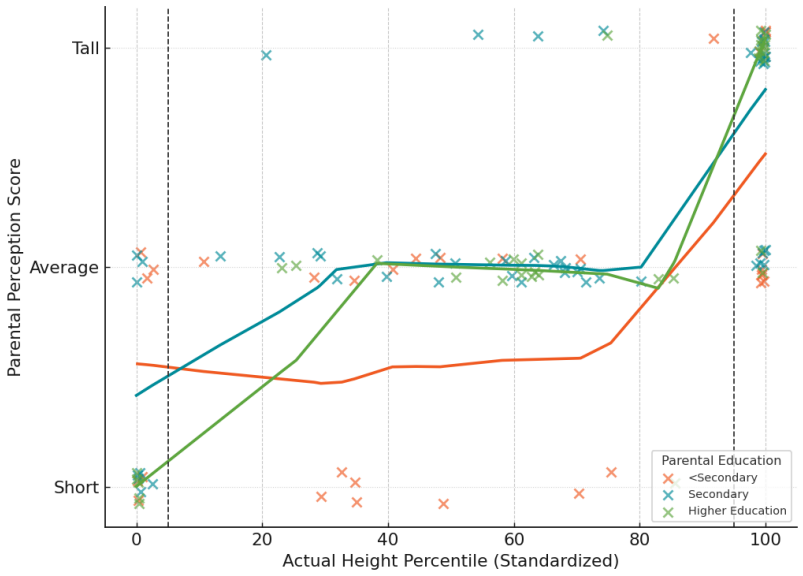

Figure 1 Relationship between actual child height percentiles and parental perception scores

The integrated figure demonstrates the relationship between actual child height percentiles and parental perception scores, stratified by parental education level. The scatter and smoothed trendlines show that as actual height percentile increases, parental perception shifts progressively from "short" to "tall" across all groups. However, notable differences emerge by education. For parents with less than secondary education, perception is more dispersed and frequently underestimates height, particularly within the normal (5th–95th percentile) range, with a clustering of responses in the "short" category even for children near the 20th–40th percentiles. In contrast, parents with higher education display sharply aligned perceptions with actual percentiles, evidenced by a tight, monotonic rise in the trendline and fewer misclassifications.

Within the short stature range (<5th percentile), over 30% of perceptions among less educated parents fail to recognize short stature, while for higher-educated parents, misclassification drops below 10%. In the tall range (>95th percentile), higher education parents correctly identify tall stature in over 90% of cases, compared to less than 60% for the lowest education group. Error bands and threshold markers at the 5th and 95th percentiles reinforce clinically relevant cutoffs for identifying stature abnormalities. This visualization highlights an education-dependent gradient in perception accuracy and a clinically important risk of missed identification of both short and tall stature, with potential implications for delayed referral and intervention.

DISCUSSION

Parental perception of child height is a critical yet often underestimated component of pediatric growth assessment. This study reveals a significant discrepancy between parental perceptions and the actual height measurements of children, with only two-thirds of short-stature children correctly identified as such by their parents. These findings support earlier observations by Collett-Solberg et al., who reported that parents of children with objectively short stature frequently misclassified them as being of normal height, reflecting a substantial perceptual gap (15). The current study extends this evidence by quantifying misperceptions across the full spectrum of stature classifications—short, normal, and tall—demonstrating that perceptual inaccuracies occur not only at the lower end of the growth percentile curve but also among children with tall stature. This underscores the bidirectional nature of perceptual bias and its potential clinical relevance in both under- and over-referral scenarios.

Educational status emerged as a consistent and significant determinant of perceptual accuracy. Parents with higher educational attainment exhibited substantially better alignment between perceived and actual height categories, with perception accuracy increasing from 54.5% in the <secondary education group to 82.9% among those with higher education. This trend parallels findings in the work of Alhumaidi et

al., who demonstrated that higher parental education is positively associated with knowledge about short stature and its implications (16). The observed odds ratios in the current study (OR 3.99 [95% CI: 1.28–12.42] for higher vs. <secondary education) confirm a statistically robust effect, suggesting that educational interventions tailored to less educated caregivers may yield measurable improvements in growth monitoring accuracy and early intervention rates.

Clinically, the moderate positive correlation between actual height percentile and perception score ($r = 0.56$, $p < 0.001$) reflects a general trend wherein parents approximate their child's stature relative to normative expectations. However, this association is insufficiently strong to ensure reliable assessment without standardized tools. The residual variance in perception—particularly evident in the lower education groups—points to the influence of non-clinical heuristics, such as visual comparisons with siblings or classmates, societal norms, and cultural stereotypes. Murano et al. noted similar perceptual distortions, where psychosocial outcomes and referral status influenced parental judgments more than objective measures did (17). These biases could delay referrals or result in unnecessary concern, depending on the direction of misperception. Moreover, misclassification has implications beyond medical management; children misidentified as short or tall may internalize distorted self-concepts, affecting their psychological development and academic confidence, as noted by Akoul et al. (18).

The implications of these findings are both diagnostic and preventive. Inaccurate parental assessments of height may delay detection of underlying conditions such as growth hormone deficiency, constitutional delay, or syndromic causes of growth impairment. Several studies, including that by Omar et al., have emphasized that parental misconceptions can negatively impact quality of life and treatment adherence in children with growth abnormalities (19). Therefore, enhancing parental understanding through structured educational programs, particularly those integrated into routine pediatric consultations or school-based health initiatives, may mitigate the consequences of these perceptual gaps. The inclusion of visual aids, percentile-based handouts, and growth tracking charts explained in lay terms could be particularly beneficial for low-literacy populations.

The comparison of our findings with those from Ahmed et al. and Biswas et al. reveals contextual variability in short stature prevalence—15% in this study versus 8% and higher, respectively, in theirs—highlighting population-specific growth trends and the potential influence of nutritional, genetic, or socioeconomic factors (20,21). Notably, our study did not stratify by familial short stature or assess nutritional history, limiting comparisons across etiologic subtypes. However, the focus on perception rather than causation provides an important behavioral dimension to the discussion, which is often missing from purely clinical growth research.

While the current study benefits from a robust sample size, precise measurement methodology, and multivariable analysis, it is not without limitations. Its cross-sectional design restricts causal inference, and the single-center recruitment limits generalizability across broader geographic or socioeconomic contexts. Furthermore, the reliance on self-reported perception without probing the reasoning behind the classification restricts our ability to dissect the cognitive and cultural determinants of misperception. Nevertheless, by directly comparing perception with objective clinical metrics, the study offers a nuanced understanding of the perceptual landscape and identifies concrete avenues for targeted intervention.

In summary, this study reinforces the critical role of parental perception in growth monitoring and highlights substantial perceptual inaccuracies—especially among less educated caregivers—that could delay diagnosis and treatment of pediatric growth disorders. The findings advocate for integrating parental education into routine pediatric practice, supported by evidence-based tools that can bridge the gap between subjective perception and clinical reality. Addressing these misalignments through culturally sensitive, education-level appropriate interventions may significantly enhance early detection and management of stature-related concerns, ultimately improving both physical and psychosocial outcomes for children.

CONCLUSION

This study demonstrates a statistically and clinically significant discrepancy between parental perception and objectively measured height in children, particularly among those with short stature. A substantial proportion of parents inaccurately assessed their child's height, with only 66.7% correctly identifying short stature and notable misclassification observed even within the normal and tall stature groups. The accuracy of perception was strongly associated with parental education, with higher educational attainment linked to more precise assessments. These findings suggest that reliance on subjective parental perception alone may be insufficient for early identification of growth concerns.

Given the established importance of timely recognition and intervention in pediatric growth disorders, the observed perceptual gaps underscore the need for structured parental education on growth standards and interpretation of growth charts. Educational interventions integrated into routine pediatric care—especially targeting parents with lower educational backgrounds—may enhance growth monitoring practices, reduce diagnostic delays, and improve child health outcomes. Clinicians should be aware of the potential biases in caregiver assessments and incorporate objective growth metrics consistently in consultations.

Ultimately, aligning parental understanding with clinical standards represents a pivotal step toward optimizing pediatric growth surveillance. By bridging this perceptual divide, healthcare systems can better ensure that children with growth abnormalities are identified, referred, and managed in a timely, equitable, and effective manner.

REFERENCES

1. Graf GH, Biroli P, Belsky DW. Critical periods in child development and the transition to adulthood. JAMA Netw Open. 2021;4(1):e2033359.

2. Likhar A, Baghel P, Patil M, Patil MS. Early childhood development and social determinants. Cureus. 2022;14(9):e29441.

3. Saavedra JM, Prentice AM. Nutrition in school-age children: a rationale for revisiting priorities. Nutr Rev. 2023;81(7):823–43.

4. Chiou JS, Cheng CF, Liang WM, Chou CH, Wang CH, Lin WD, et al. Your height affects your health: genetic determinants and health-related outcomes in Taiwan. BMC Med. 2022;20(1):250.

5. Kościcka K, Czepczor K, Brytek-Matera A. Body size attitudes and body image perception among preschool children and their parents: a preliminary study. Arch Psychiatry Psychother. 2016;4:28–34.

6. Mchome Z, Bailey A, Darak S, Haisma H. "A child may be tall but stunted." Meanings attached to childhood height in Tanzania. Matern Child Nutr. 2019;15(3):e12769.

7. Akoul M, Lotfi S, Radid M. Effects of academic results on the perception of competence and self-esteem in students' training. Glob J Guid Couns Sch Curr Perspect. 2020;10(1):12–22.

8. Frankenhuis WE, Amir D. What is the expected human childhood? Insights from evolutionary anthropology. Dev Psychopathol. 2022;34(2):473–97.

9. Shur N, Tigranyan A, Daymont C, Regier DS, Raturi S, Roshan Lal T, et al. The past, present, and future of child growth monitoring: a review and primer for clinical genetics. Am J Med Genet A. 2023;191(4):948–61.

10. Fenton TR, Gilbert N, Elmrayed S, Fenton CJ, Boctor DL. What is normal growth? Principles, practicalities and pitfalls of growth assessments in infants and children. Ann Nutr Metab. 2024:1–1.

11. Khaliq A, Nambiar S, Miller YD, Wraith D. Assessing the relationship of maternal short stature with coexisting forms of malnutrition among neonates, infants, and young children of Pakistan. Food Sci Nutr. 2024;12(4):2634–49.

12. Murano MC, Feldt MM, Lantos JD. Parental concerns on short stature: a 15-year follow-up. J Pediatr. 2020;220:237–40.

13. Collett-Solberg PF, Collett-Solberg PR. Comparison between actual and perceived height of parents of children with short stature and controls. Int J Pediatr Endocrinol. 2009;2009:1–5.

14. Omar RM, Bahgat RS, Elhalafawy SE. Mothers' knowledge and perception toward short stature of their children and its effect on quality of life. Tanta Sci Nurs J. 2023;31(4):357–73.

15. Kamoun C, Miller VA, Feudtner C, Friedrich EA, Grimberg A. Views on short stature of female vs male endocrine pediatric patients undergoing provocative growth hormone testing and their parents. Endocr Pract. 2023;29(7):517–24.

16. Ahmed N, El Abd Elsalam E. Mothers' knowledge and perception about short stature of their children. Int J Novel Res Healthc Nurs. 2017;4(1):253–62.

17. Shafqat T, Abid SA. Frequency of familial short stature identified in children presenting with short stature. Azerbaijan Pharm Pharmacol J. 2024;23:1–5.

18. Biswas R, Farzana N, Rahman SN. Clinicoepidemiological profile of short stature at a tertiary care centre in Bangladesh. Dhaka Shishu Hosp J. 2022;38(2):79–83.

19. Alhumaidi KA, Alotaibi EA, Almansour S, Alharbi A, Alharbi NH, AlJameli SM, et al. Parents' knowledge and perception toward short stature in Saudi Arabia. Cureus. 2023;15(12):e51023.

20. Ullah F, Ghaffar T, Afridi AK, Ali A, ul Hasan Aamir A. Short stature: what is the cause in our population. J Ayub Med Coll Abbottabad. 2016;28(1):135–40.