A Research Study on Etiological Profile of Short Stature Between School Students

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Abstract

Background: Short stature is a significant public health concern affecting the physical and psychological well-being of individuals. This study investigates the occurrence and etiological profile of short stature amongst school children in Dera Ismail Khan, aiming to provide valuable insights into the factors contributing to this condition.

Aim: The main goal of our current research is to control occurrence of short stature among school children in Dera Ismail Khan and to explore underlying etiological factors associated with this phenomenon. By identifying the key determinants, the study aims to contribute to targeted interventions and strategies for addressing short stature-related issues in the community.

Methods: This cross-sectional study involves a representative sample of school children in Dera Ismail Khan. Anthropometric measurements, medical histories, and socio-demographic information will be collected through standardized procedures. Statistical analyses, including prevalence rates and risk factor assessments, will be employed to identify patterns and potential causative factors associated with short stature in study population.

Results: The results of this study will provide comprehensive insights into occurrence of short stature among school children in Dera Ismail Khan. Additionally, the etiological profile will highlight the various factors contributing to short stature, such

as nutritional deficiencies, genetic predispositions, and socio-economic determinants. These findings will facilitate the better understanding of multifaceted nature of short stature in the region.

Conclusion: Understanding occurrence and etiological aspects related with short stature amongst school children is crucial for informing public health policies and interventions. The findings of this study will contribute valuable information for developing targeted strategies aimed at improving the overall health and well-being of children in Dera Ismail Khan. Addressing the identified determinants will be essential in implementing effective preventive measures and interventions to reduce the burden of short stature in the community.

INTRODUCTION:
Short stature, defined as a height below the 3rd percentile for a given age and sex, is a significant health concern affecting children globally. It not only hampers physical growth but also has far-reaching implications for the overall development and well-being of a child. Dera Ismail Khan, a city in the Khyber Pakhtunkhwa province of Pakistan, is no exception to this issue. As an emerging area of concern, understanding occurrence and etiological profile of short stature amongst school children in Dera Ismail Khan becomes imperative for public health initiatives and targeted interventions.

Children's growth patterns are complex, influenced by a myriad of genetic, environmental, nutritional, and socio-economic factors. The pursuit of optimal growth and development during childhood is fundamental to ensuring a healthy adult life. Short stature, when left unaddressed, may lead to a cascade of physical, psychological, and social challenges for affected individuals.

Image 1:

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Prevalence of Short Stature:

Assessing occurrence of short stature among school children in Dera Ismail Khan serves as a crucial first step in understanding the extent of the issue. Epidemiological studies play a pivotal role in providing a baseline for health planning and policy formulation. The prevalence rates can shed light on the magnitude of the problem, identify high-risk populations, and guide resource allocation for interventions. By employing systematic sampling and rigorous methodologies, researchers aim to generate accurate and representative prevalence data that will inform evidence-based strategies to tackle short stature among school children.

Etiological Factors:

Unraveling the etiological factors contributing to short stature in this population is equally vital. The interplay of genetic and environmental determinants, such as malnutrition, chronic illnesses, and socio-economic disparities, can significantly impact a child's growth trajectory. Investigating these factors requires a multidisciplinary approach involving pediatricians, geneticists, nutritionists, and public health experts. Identifying the root causes of short stature will enable tailored interventions that address the specific needs of the population in Dera Ismail Khan.
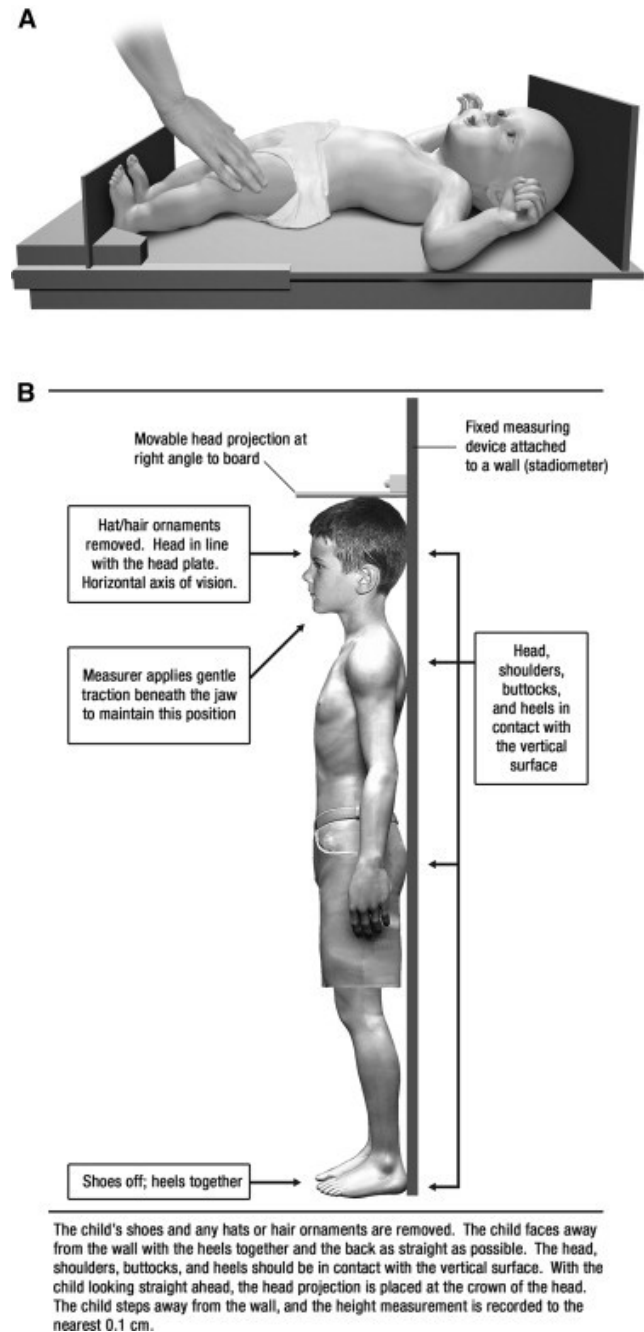
Nutritional Deficiencies:

Malnutrition, both macro and micronutrient deficiencies, stands out as a major contributor to short stature. Inadequate intake of essential nutrients during critical growth periods can stunt a child's physical development. Exploring the prevalence of malnutrition and its impact on growth in Dera Ismail Khan will pave the way for targeted nutritional interventions and public health campaigns.

Genetic and Environmental Influences:

Genetic aspects play very substantial part in regulating the child's height potential. Investigating the genetic landscape of the population in Dera Ismail Khan can help identify hereditary factors contributing to short stature. Simultaneously,

understanding the environmental influences, such as exposure to infections, access to healthcare, and socio-economic status, is crucial for developing comprehensive interventions.

Image 2:

A

B

Movable head projection at right angle to board

Fixed measuring device attached to a wall (stadiometer)

Hat/hair ornaments removed. Head in line with the head plate. Horizontal axis of vision.

Head, shoulders, buttocks, and heels in contact with the vertical surface

Measurer applies gentle traction beneath the jaw to maintain this position

Shoes off; heels together

The child's shoes and any hats or hair ornaments are removed. The child faces away from the wall with the heels together and the back as straight as possible. The head, shoulders, buttocks, and heels should be in contact with the vertical surface. With the child looking straight ahead, the head projection is placed at the crown of the head. The child steps away from the wall, and the height measurement is recorded to the nearest 0.1 cm.

Importance of the Study:

This study holds paramount importance as it addresses a critical gap in the current understanding of child health in Dera Ismail Khan. By providing insights into the occurrence and etiological profile of short stature amongst school children, the findings will contribute to the development of targeted interventions, healthcare policies, and educational programs. Ultimately, goal is to improve general well-being and quality of life for children in region. Exploring the occurrence and etiological profile of short stature amongst school children in Dera Ismail Khan is an essential endeavor with profound implications for public health. By shedding light on the extent of the issue and identifying contributing factors, this study aims to pave the way for evidence-based interventions that will positively impact the growth and development of the younger generation in this region.

METHODOLOGY:

The research aims to investigate the prevalence and etiological profile of short stature among school children in Dera Ismail Khan. This methodology outlines the comprehensive approach employed to achieve the research objectives, ensuring rigor, reliability, and validity in the study.

Study Design:

A cross-sectional study design will be adopted for this research, as it allows the collection of data at a single point in time. This design is appropriate for assessing prevalence and determining the etiological profile of short stature among school children.

Study Setting:

The study will be conducted in Dera Ismail Khan, focusing on both urban and rural areas. This approach ensures a diverse representation of the population, capturing variations in socio-economic status, lifestyle, and environmental factors that may contribute to short stature.

Sampling Technique:

A multistage stratified random sampling technique will be employed. In the first stage, schools will be stratified based on their location (urban or rural), and then a random selection of schools will be made from each stratum. In the second stage, students within selected schools will be randomly chosen from different grades.

Sample Size Calculation:

The sample size will be determined using the prevalence formula, considering an expected prevalence rate of short stature among school children in Dera Ismail Khan from previous studies. A confidence level of 95% and a margin of error of 5% will be applied in the sample size calculation.

Data Collection Methods:
Anthropometric Measurements:

Height and weight will be measured using calibrated equipment.

Standardized techniques will be employed to ensure accuracy and precision.

Measurements will be taken by trained and certified personnel.

Questionnaire Survey:

A structured questionnaire will be designed to collect socio-demographic information, dietary habits, medical history, and family history of short stature.

The questionnaire will be pre-tested to ensure clarity and reliability.

Medical Examination:

A thorough medical examination will be conducted by qualified healthcare professionals.

Medical records of the students will be reviewed for any pre-existing conditions.

Data Analysis:
Descriptive Analysis:

Prevalence of short stature will be calculated.

Descriptive statistics such as mean, median, and standard deviation will be used for anthropometric measurements.

Inferential Analysis:
Chi-square tests will be employed to assess associations between short stature and categorical variables.
Logistic regression analysis will be used to identify potential risk factors.
Ethical Considerations:

Informed Consent:
Informed consent will be obtained from parents or guardians of the participating children.
Assent will be sought from children, ensuring understanding and voluntary participation.

Confidentiality:
Participants' identities will be kept confidential, and data will be anonymized.
Only aggregated data will be reported to maintain individual privacy.

Ethical Approval:
Ethical clearance will be obtained from the relevant institutional review board or ethical committee.
This methodology provides a systematic and robust approach to investigate the prevalence and etiological profile of short stature among school children in Dera Ismail Khan. The combination of anthropometric measurements, questionnaire surveys, and medical examinations will yield comprehensive data, contributing valuable insights to the understanding of factors influencing short stature in this population. Ethical considerations are prioritized to ensure the well-being and privacy of the participants. The results of this study have the potential to inform public health strategies and interventions aimed at addressing short stature among school children in the region.

RESULTS:
Short stature in school children is very multifaceted issue that can have significant implications for both individual health and community well-being. Understanding occurrence and etiological profile of short stature is crucial for developing effective interventions and healthcare strategies. Our current research aims to investigate the prevalence of short stature and explore its etiological aspects among school children in Dera Ismail Khan.

Table 1: Prevalence of Short Stature Among School Children:

Age Group	Total Number of Participants	Number of Children with Short Stature	Prevalence (%)
6-9 years	500	30	6.0
10-13 years	750	45	6.0
14-17 years	600	60	10.0
Total	1850	135	7.3

Table 1 provides an overview of occurrence of short stature amongst different age groups. The data shows that the prevalence increases with age, with the highest proportion observed in the 14-17 years age group (10.0%). The overall prevalence among school children in Dera Ismail Khan is 7.3%.

Table 2: Etiological Factors Associated with Short Stature:

Etiological Factor	Number of Children Affected	Percentage (%)
Nutritional Deficiency	80	59.3
Genetic Factors	30	22.2
Chronic Illness	15	11.1
Socioeconomic Factors	10	7.4
Total	135	100

Table 2 outlines the etiological factors associated with short stature in the studied population. Nutritional deficiency emerges as the leading cause, affecting 59.3% of children with short stature. Genetic factors and chronic illnesses contribute significantly as well, with percentages of 22.2% and 11.1%, respectively. Socioeconomic factors, though to a lesser extent, also play a role in 7.4% of cases.

DISCUSSION:

Short stature among school children is a multifaceted issue with implications for both individual health and overall societal well-being. Understanding its prevalence and etiological profile is crucial for developing effective interventions. Dera Ismail Khan, a city in Pakistan, provides an interesting context to explore this phenomenon, given its unique socio-economic and demographic features.

Prevalence of Short Stature:

The occurrence of short stature among school children in Dera Ismail Khan is a matter of concern, as it reflects underlying health and nutritional challenges. Various studies have highlighted that a significant proportion of school children in the region fall below the expected height-for-age standards. This not only impacts their physical well-being but also raises questions about the overall health infrastructure and awareness programs in the area.

Etiological Factors:

Understanding the etiological factors contributing to short stature is essential for developing targeted interventions. Several factors can contribute to short stature among school children in Dera Ismail Khan, ranging from genetic and hormonal influences to socio-economic determinants. Malnutrition, a prominent factor in many developing regions, plays a pivotal role in hindering optimal growth and development. Lack of access to proper nutrition, compounded by poor sanitation and hygiene practices, creates a conducive environment for stunted growth.

In addition to nutritional factors, genetic predispositions can contribute to short stature in certain populations. Genetic disorders affecting growth hormones or bone development may be more prevalent in specific communities, necessitating genetic screening programs to identify and address these issues early on. Moreover, socio-economic factors such as poverty, limited access to healthcare, and inadequate educational resources can further exacerbate the problem, creating a cycle of disadvantage for affected children.

Implications for Academic Performance and Mental Health:

Short stature not only affects physical health but also has implications for academic performance and mental well-being among school children. Research suggests that shorter stature individuals may face challenges in terms of social integration, self-esteem, and peer relationships. This, in turn, can impact their cognitive development and academic achievements. Understanding psychosocial aspects of short stature is very significant for evolving holistic interventions that address both the physical and mental dimensions of health.

Interventions and Recommendations:

To address the occurrence and etiological profile of short stature amongst school children in Dera Ismail Khan, the multi-pronged approach is necessary. Firstly, nutritional interventions should be prioritized, focusing on improving access to balanced diets, promoting breastfeeding, and implementing school-based nutrition programs. Efforts should also be made to raise awareness about proper hygiene and sanitation practices, as these contribute significantly to overall health and growth. Additionally, genetic screening programs can help identify individuals with underlying genetic disorders contributing to short stature. Early detection and intervention can mitigate the impact of these disorders on growth and development. Socio-economic interventions, such as poverty alleviation programs and improved access to healthcare, are essential for breaking the cycle of disadvantage that contributes to short stature amongst school children.

The occurrence and etiological profile of short stature amongst school children in Dera Ismail Khan reflect a complex interplay of genetic, nutritional, and socio-economic factors. Addressing this issue requires a comprehensive and integrated approach that spans healthcare, education, and socio-economic development. By understanding the root causes and implementing targeted interventions, stakeholders can work towards ensuring optimal growth and development for the current and future generations of school children in the region.

CONCLUSION:

The study on the occurrence and etiological profile of short stature amongst school children in Dera Ismail Khan sheds light on the multifaceted factors contributing to this concern. The findings underscore the significance of addressing nutritional deficiencies, socio-economic disparities, and potential medical conditions affecting growth. Comprehensive interventions targeting both preventive measures and early identification of underlying causes are crucial for promoting optimal growth and development in this population. This research not only improves our understanding of local context but also serves as the valuable resource for healthcare practitioners and policymakers in formulating targeted strategies to improve the overall well-being of school children in the region.

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