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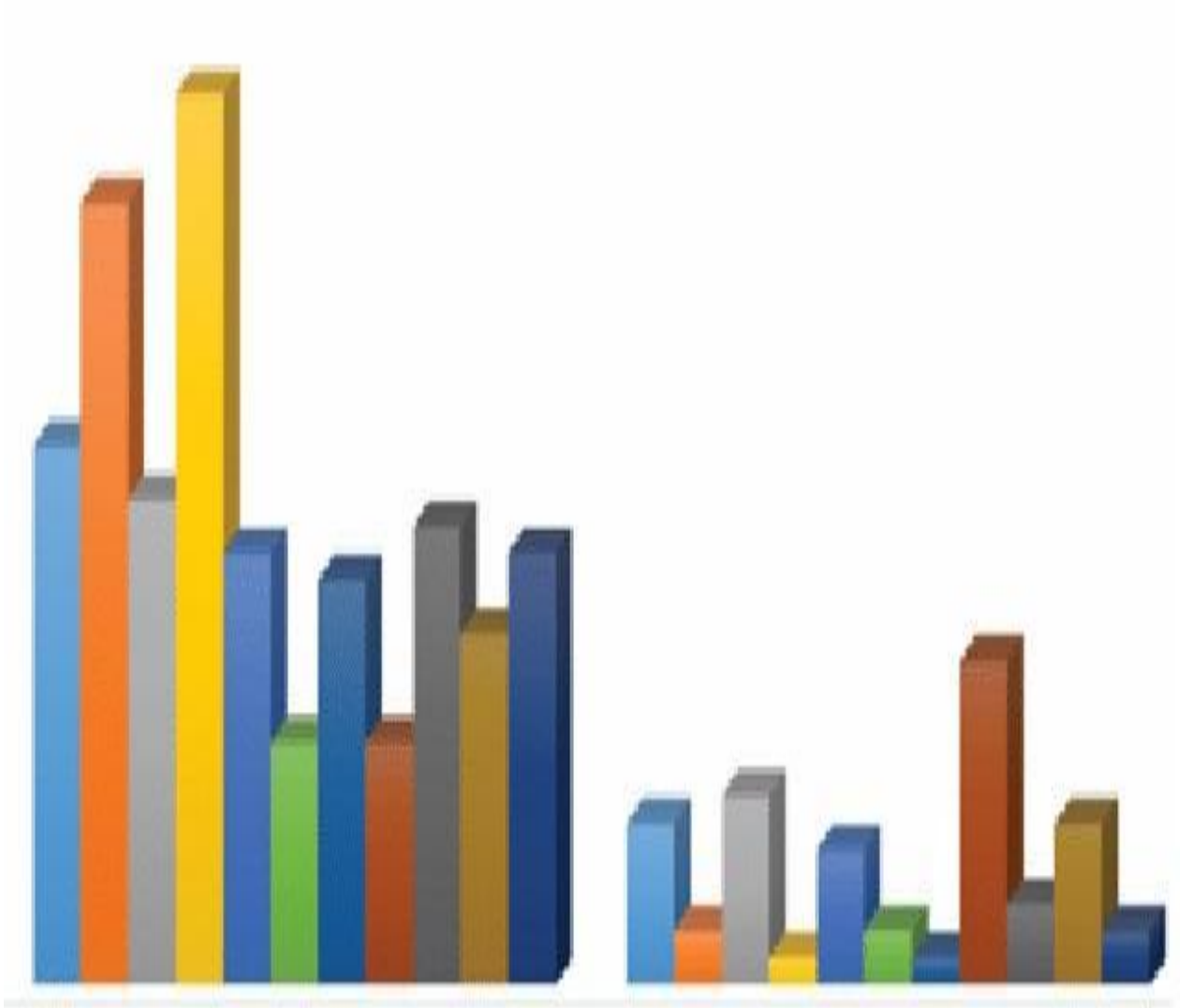

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Research Article

Exploring Stunting and Its Determinants among School-Going Children in Jammu & Kashmir

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ABSTRACT

This study investigated the prevalence and determinants of stunting among school-going children in the Reasi district of Jammu & Kashmir, with particular focus on disparities between Scheduled Tribe (ST) and General category children. Using a cross-sectional research design, the study examined 400 children aged 5-10 years, collecting anthropometric measurements and socio-demographic data through structured surveys. Results revealed that 43 per cent of children exhibited stunting, with 27.5 per cent moderately stunted and 15.5 per cent severely stunted. ST children showed higher vulnerability with 48 per cent affected (31.5% moderate, 16.5% severe stunting) compared to the General category children (38% affected). Several factors were significantly associated with stunting, including maternal diet during pregnancy ($p = 0.0247$), birth timing ($p = 0.0007$), and household economic status ($p = 0.0031$). Children from Below Poverty Line families showed higher stunting rates (56.98%) compared to Above Poverty Line families (39.17%). Father's education level ($p = 0.0100$) and household income ($p = 0.0000$) were identified as significant protective factors against stunting. Environmental factors, including cooking area type ($p < 0.0001$), demonstrated significant associations with stunting prevalence. The study also found that younger children (ages 6-7) were more susceptible to stunting, suggesting the importance of early intervention. These findings underscore the need for targeted interventions that address both immediate nutritional needs and underlying socioeconomic determinants, particularly among ST communities. The results highlight the importance of a comprehensive approach that integrates nutritional support with broader social and economic development initiatives to combat stunting in this region effectively.

Keywords: stunting, school children, child nutrition, socioeconomic determinants

BACKGROUND

Stunting, a condition where children are significantly shorter than the average for their age, is a critical public health issue affecting millions of children worldwide (Martorell & Young, 2012). Defined as a height-for-age that falls more than two standard deviations below the World Health Organisation (WHO) growth standards, stunting is an indicator of chronic malnutrition and poor childhood development (UNICEF et al., 2012). It is linked to a variety of adverse health outcomes, including weakened immunity, increased susceptibility to infections, and impaired cognitive development, which can affect a child's educational performance and future economic potential (Atsu et al., 2017). Globally, an estimated 149 million children under the age of five were affected by stunting in 2020, primarily in low-income and developing countries (UNICEF et al., 2012).

Stunting results from a complex interaction of inadequate nutrition, poor maternal health, limited access to healthcare, poor sanitation, and socioeconomic disadvantage (Atsu et al., 2017). In many cases, stunting reflects the underlying inequities that persist in impoverished regions. For children in marginalised communities, particularly in rural and tribal areas, the risks of stunting are even more pronounced due to restricted access to essential resources like nutritious food, clean water, and healthcare (Fufa, 2022). The implications of stunting are not only a concern for immediate child health but also the long-term development and productivity of the population (Fenta et al., 2020).

Focus Area

In India, stunting remains a significant public health challenge, particularly among specific vulnerable populations (Das et al., 2022). The state of Jammu & Kashmir, located in the northern part of India, is home to diverse indigenous communities, including Scheduled Tribes (STs), which face unique challenges related to access to quality education, healthcare, and nutrition (O. R. Katoch et al., 2021).

Despite recent efforts by the government to address these disparities, children from these communities continue to face high levels of malnutrition and stunting. The prevalence of stunting among children in Jammu & Kashmir is a growing concern, especially in rural and remote areas (Ministry of Health and Family Welfare (GoI), 2021). Factors such as limited healthcare infrastructure, low maternal education, and insufficient nutrition in early childhood contribute to the high levels of stunting among these children (O. R. Katoch, 2021). By focusing on children in these marginalised communities in Jammu & Kashmir, this study aims to fill a significant research gap, providing insights into the specific factors that contribute to stunting.

RATIONALE

Understanding the determinants of stunting among children in Jammu & Kashmir is critical for developing effective interventions that can reduce malnutrition and improve health outcomes (Katoch & Nawaz, 2018). The importance of this study lies in its potential to

highlight the unique challenges faced by marginalised communities and inform targeted policies and interventions to address these challenges. While there have been national-level studies on child malnutrition in India, research specifically focused on these vulnerable populations in Jammu & Kashmir is sparse. Given the region's distinct social, cultural, and geographical context, interventions that are effective in other parts of the country may not necessarily apply to these communities.

In addition, children from marginalised backgrounds often face compounded disadvantages in terms of access to education, healthcare, and nutrition (O. R. Katoch, 2022). Schools play a key role in early childhood development, and understanding the impact of stunting on children's performance and overall well-being in educational settings is essential. By examining the intersection of stunting and education, this study will shed light on how malnutrition affects not only physical health but also cognitive and academic outcomes.

OBJECTIVES

The primary objective of this study is to explore the prevalence and determinants of stunting among children attending schools in Jammu & Kashmir. Specifically, the study aims to:

- Assess the current prevalence of stunting among children in the selected schools.
- Identify the key socioeconomic and environmental factors that contribute to stunting.

By addressing these objectives, this research will provide valuable insights into the root causes of stunting and offer practical recommendations for policymakers and health professionals to address the issue effectively.

LITERATURE REVIEW

Global Perspective on Stunting

Stunting remains a widespread public health concern globally, affecting millions of children, particularly in low-income and marginalised communities (O. R. Katoch, 2022). According to the World Health Organisation (WHO), approximately 149 million children under the age of five were stunted in 2020, with the majority residing in Sub-Saharan Africa and South Asia (Adedokun & Yaya, 2021). Stunting is more prevalent in regions where poverty, poor nutrition, and inadequate healthcare are common (Fenta et al., 2020). The condition is often a result of long-term undernutrition, typically caused by insufficient dietary intake during critical periods of growth in the first two years of life.

The factors contributing to stunting are multifaceted and include inadequate food intake, poor feeding practices, limited access to clean water, and inadequate sanitation (Katoch, 2023). Malaria, diarrhoea, and other infectious diseases also play a role in exacerbating stunting, particularly in regions with high disease burden. These conditions can reduce nutrient absorption and increase the body's energy demands, leading to growth

deficits. Additionally, socio-economic inequalities, limited access to healthcare, and a lack of maternal education further exacerbate the issue, creating a cycle of undernutrition that is difficult to break (Saunders & Smith, 2010). In marginalised communities, stunting is often compounded by cultural practices, limited awareness of proper nutrition, and geographic isolation. Children from rural and indigenous populations are more likely to experience stunting due to factors such as food insecurity, limited healthcare infrastructure, and social marginalisation (Dukhi & Dukhi, 2020).

DETERMINANTS OF STUNTING

The determinants of stunting can be categorised into biological, social, economic, and environmental factors:

Biological Factors: Genetics, birth weight, and maternal health play a critical role in determining a child's growth trajectory. Children born to undernourished mothers are more likely to experience stunted growth due to compromised fetal development (Harris & Nisbett, 2021).

Social and Economic Factors: Poverty is a significant contributor to stunting. Families living in poverty often lack the financial resources to provide adequate nutrition and healthcare. Low maternal education is another significant determinant, as educated mothers are more likely to engage in positive health behaviours, including better feeding practices and seeking timely medical help (Keats et al., 2021).

Environmental Factors: Poor sanitation and lack of access to clean drinking water contribute to frequent infections, which can impair growth by reducing nutrient absorption. In rural and tribal communities, these environmental challenges are particularly pronounced, increasing the risk of stunting (Ampaabeng & Tan, 2013; WHO, 2020).

Nutrition: Adequate and balanced nutrition is essential for a child's growth and development. In many developing regions, children often lack essential micronutrients, including iron, zinc, and vitamin A, which can result in stunted growth. In tribal areas, traditional diets often lack diversity, which can further exacerbate nutritional deficiencies (Abhishek, 2020; Ersado & Ersado, 2022).

METHODOLOGY

Study Design

This study employed a cross-sectional research design to assess the prevalence of stunting and its associated determinants among school-going children in Jammu and Kashmir. A cross-sectional approach was used to collect data at a single point in time, providing a snapshot of the nutritional status of children in the selected schools. This design was suitable for exploring the relationship between stunting and various social, economic, and environmental factors in the target population.

Study Area

The study was conducted in the Reasi district of Jammu & Kashmir. Reasi is characterised by its mountainous terrain and rural setup, with many villages lacking basic infrastructure, including clean water, healthcare services, and educational facilities. Children in these areas who were going to school were the primary focus of the study, as these children were likely to experience high levels of malnutrition due to limited resources and challenging socio-economic conditions.

Sample Population

The sample included 400 school-going children attending primary schools in the Reasi district. These children were selected based on the following inclusion criteria:

- Age Group: Children aged 5 to 10 years.
- School Attendance: Children who were currently enrolled in schools.
- Parental Consent: Written consent from parents or guardians for their children's participation in the study.

Schools were selected to ensure a diverse representation of both rural and semi-rural areas within the district.

Data Collection

Data were collected using a combination of anthropometric measurements, surveys, and interviews:

- Anthropometric Measurements: Height and weight were measured to calculate the height-for-age ratio, a key indicator of stunting.
- Surveys and Interviews: Structured questionnaires were used to gather data from children to know the socio-economic conditions.

Data Analysis

Data were analysed using statistical tools such as SPSS. Descriptive statistics (e.g., means, percentages) summarised the prevalence of stunting. Bivariate analysis (e.g., chi-square tests) examined associations between stunting and socio-economic, environmental, and health-related factors.

RESULTS

Prevalence of Stunting

The prevalence of stunting among school-going children in the Reasi district of Jammu & Kashmir was assessed through a survey of 400 school-going children. The findings reveal that 57 per cent of children in the study had normal growth, while 27.5 per cent and 15.5 per cent were classified as moderately stunted and severely stunted, respectively.

The data show a higher prevalence of stunting among ST children compared to the General category, with 52 per cent of ST children exhibiting normal growth, while 31.5 per cent were moderately stunted and 16.5 per cent severely stunted. In contrast, the General category had 62 per cent of children in the normal range, with lower rates of moderate (23.5%) and severe stunting (14.5%). This difference highlights a significant health disparity between the two groups, with ST

children being more susceptible to malnutrition and stunting.

Age-wise analysis indicated that younger children were more affected by stunting, with children aged 6 and 7 years showing the highest rates of moderate and severe stunting. The prevalence of stunting decreased with age, with children in higher grades (fourth and fifth) showing better nutritional outcomes. This may suggest that earlier interventions, such as improved nutrition and health care, could be crucial in addressing stunting at a young age.

Table 1: Demographic Characteristics and Child Stunting

Variables	N=400	Normal	Moderate Stunting	Severe Stunting	Chi-Square
Gender					
Female	164	96 (58.54)	47 (28.66)	21 (12.80)	χ^2=1.7055 df=2 p=0.4262**
Male	236	132 (55.93)	63 (26.69)	41 (17.37)	
Age in Years					
6	25	11 (44.00)	9 (36.00)	5 (20.00)	χ^2=17.44 df=8 p< 0.000*
7	51	27 (52.94)	16 (31.37)	8 (15.69)	
8	98	71 (72.45)	13 (13.27)	14 (14.29)	
9	98	47 (47.96)	34 (34.69)	17 (17.35)	
10	128	72 (56.26)	38 (29,69)	18 (14.06)	
Class of the Child					
1st	32	13 (40.63)	10 (31.25)	9 (28.13)	χ^2= 18.7607 df=8 p=0.0164*
2nd	72	37 (51.39)	17 (23.61)	18 (25.00)	
3rd	127	66 (51.97)	41 (32.28)	20 (15.75)	
4th	106	68 (64.15)	28 (26.42)	10 (9.43)	
5th	63	44 (69.84)	14 (22.22)	5 (7.94)	
Mother's diet during pregnancy					
Adequate	21	16 (76.19)	2 (9.52)	3 (14.29)	χ^2= 7.3974 df=2 p=0.0247*
Inadequate	379	212 (55.94)	108 (28.50)	59 (15.57)	
Birth timing of the child					
Normal	393	228 (58.02)	107 (27.23)	58 (14.76)	χ^2=14.6375 df=2 P=0.0007*
Pre-maturity	7	0 (0.00)	3 (42.86)	4 (57.14)	
Place of delivery					
At Home	383	220 (57.44)	105 (27.42)	58 (15.14)	χ^2= 5.5724 df=4 p=0.2334**
Govt. Hospital	12	5 (41.67)	5 (41.67)	2 (16.67)	
Private Nursing Home	5	3 (60.00)	0 (0.00)	2 (40.00)	
Nature of birth					
Caesarean	4	1 (25.00)	1 (25.00)	2 (50.00)	χ^2= 2.7814 df=2 p=0.2488**
Normal	396	227 (57.32)	109 (27.53)	60 (15.15)	
Child is Living with					
Father & Mother	385	224 (58.18)	102 (26.49)	59 (15.32)	χ^2= 9.8903 df=8 p=0.2726**
Father only	1	0 (0.00)	1 (100.00)	0 (0.00)	
In Orphanage	3	0 (0.00)	2 (66.67)	1 (33.33)	
With Mother only	9	2 (22.22)	5 (55.56)	2 (22.22)	
With Relatives	2	2 (100.00)	0 (0.00)	0 (0.00)	
Who is taking care of the child					
Father & Mother	384	224 (58.33)	101 (26.30)	59 (15.36)	χ^2= 10.1903 df=8 p=0.2521**
Father only	2	0 (0.00)	2 (100.00)	0 (0.00)	
Mother only	9	2 (22.22)	5 (55.56)	2 (22.22)	
Orphanage Committee	3	0 (0.00)	2 (66.67)	1 (33.33)	
Relatives	2	2 (100.00)	0 (0.00)	0 (0.00)	
What type of food do you prefer					
Non-vegetarian	353	204 (57.79)	95 (26.91)	54 (15.30)	χ^2= 0.4441 df=2 p=0.8010**
Vegetarian	47	24 (51.06)	15 (31.91)	8 (17.02)	

Sources: Survey Data, 2023. *Significant, **Not Significant

Table 2 Demographic Characteristics and Child Stunting (Cont...)

Variables		N=400	Normal	Moderate stunting	Severe Stunting	Chi-Square
Religion						
	Hindu	27	15 (55.56)	7 (25.93)	5 (18.52)	χ^2= 7.7974
	Muslim	370	213 (57.57)	100 (27.03)	57 (15.41)	df=4 p=0.0994**
	Sikh	3	0 (0.00)	3 (100.00)	0 (0.00)	
Social Category						
	Gen	200	124 (62.00)	47 (23.50)	29 (14.5)	χ^2= 4.340 df=2
	ST	200	104 (52.00)	63 (31.50)	33 (16.50)	p=0.0372*
Economic Category						
	BPL	86	37 (43.02)	31 (36.05)	18 (20.93)	χ^2= 8.748
	APL	314	191 (60.83)	79 (25.16)	44 (14.01)	df=2 p=0.0031*
Birth Order						
	1^{st} - 2^{nd}	119	68 (57.14)	31 (26.05)	20 (16.81)	χ^2= 2.7316
	3^{rd} – 4^{th}	244	136 (55.74)	72 (29.51)	36 (14.75)	df=6 p=0.8417**
	5^{th} – 6^{th}	33	22 (66.67)	6 (18.18)	5 (15.15)	
	$>7^{th}$	4	2 (50.00)	1 (25.00)	1 (25.00)	
Family Members						
	≤ 4	36	17 (47.22)	11 (30.56)	8 (22.22)	χ^2= 10.1863
	5 - 6	168	95 (56.55)	43 (25.60)	30 (17.86)	df=6
	7- 8	157	86 (54.78)	48 (30.57)	23 (14.65)	p=0.1171**
	≥ 8	39	30 (76.92)	8 (20.51)	1 (2.56)	
Type of family						
	Joint	119	70 (58.82)	29 (24.37)	20 (16.81)	χ^2= 0.9229
	Nuclear	281	158 (56.23)	81 (28.83)	42 (14.95)	df=2 p=0.6303**
Mothers Education						
	No formal Education	369	206 (55.83)	104 (29.27)	59 (15.99)	χ^2= 3.1800 df=6
	Primary	17	12 (70.59)	3 (17.65)	2 (11.76)	p=0.0745**
	Secondary	11	8 (72.73)	2 (18.18)	1 (9.09)	
	Higher Education	3	2 (66.67)	1 (33.33)	0 (0.00)	
Fathers Education						
	No formal Education	319	178 (55.80)	94 (29.47)	47 (14.73)	χ^2= 6.632 df=6
	Primary	32	17 (53.13)	7 (21.88)	8 (25.00)	p=0.0100*
	Secondary	38	24 (63.16)	8 (21.05)	6 (15.79)	
	Higher Education	11	9 (81.82)	1 (9.09)	1 (9,09)	

Sources: Survey Data, 2023. *Significant, **Not Significant

Table 3 Demographic Characteristics and Child Stunting (Cont...)

Variables	N=400	Normal	Moderate stunting	Severe Stunting	Chi-Square
Mothers Occupation					
Home Maker	389	221 (56.81)	107 (27.51)	61 (15.68)	χ^2= 1.630
Govt. Employment	7	5 (71.43)	2 (28.57)	0 (0.00)	df=4
Private/Self Employment	4	2 (50.00)	1 (25.00)	1 (25.00)	p=0.2017**
Fathers Occupation					
Farmer/Labourer	359	204 (56.82)	98 (27.30)	57 (15.88)	χ^2= 1.334
Govt. Employment	17	11 (64.71)	5 (29.41)	1 (5.88)	df=4
Private/Self Employment	24	13 (54.17)	7 (29.17)	4 (16.67)	p=0.2481**
Nature of House					
Kacha	195	108 (55.38)	56 (28.72)	31 (15.90)	χ^2= 2.7973
Pucca	15	11 (73.33)	2 (13.33)	2 (13.33)	df=4
Semi-pucca	190	109 (57.37)	52 (27.37)	29 (15.26)	p=0.5924**
Type of cooking area used					
Open Area	10	4 (40.00)	3 (30.00)	3 (30.00)	χ^2= 162.9106
Separate Kitchen	136	65 (47.79)	41 (30.15)	30 (22.06)	df=4
Within Living Area	254	159 (62.60)	66 (25.98)	29 (11.42)	p=0.0001*
Head of the Household					
Man	378	216 (57.14)	102 (26.99)	60 (15.87)	χ^2= 1.6309
Woman	22	12 (54.55)	8 (36.36)	2 (9.09)	df=2 p=0.4424**
Availability of Safe Drinking water at home					
Natural Spring	29	14 (48.28)	9 (31.03)	6 (20.69)	χ^2= 1.3315
Tap Water	371	214 (57.68)	101 (27.22)	56 (15.09)	df=2 p=0.5139**
Availability of Toilet at Home					
No	48	31 (64.58)	10 (20.83)	7 (14.58)	χ^2= 1.1658
Yes	352	197 (55.97)	100 (28.41)	55 (15.63)	df=2 p=0.5582**
Land Owned Range					
≤ 3 Kanal	86	51 (59.30)	26 (30.23)	9 (10.47)	χ^2= 4.9024
4 – 8 Kanal	165	91 (55.15)	48 (29.09)	26 (15.76)	df=6
9 – 12 Kanal	82	48 (58.54)	20 (24.39)	14 (17.07)	p=0.5566**
≥ 13 Kanal	67	38 (56.72)	16 (23.88)	13 (19.40)	
Income Level					
<100000	163	69 (42.33)	58 (35.58)	36 (22.09)	χ^2= 23.136
100001-300000	176	98 (55.68)	51 (28.98)	27 (15.34)	df=6
300001-500000	34	25 (73.53)	5 (14.71)	4 (11.76)	p=0.0000*
>500000	27	22 (81.48)	4 (14.81)	1 (3.70)	
Type of cooking fuel used					
Firewood	261	154 (59.00)	67 (25.67)	40 (15,33)	χ^2= 1.9201
LPG, Firewood	139	74 (53.24)	43 (30.94)	22 (15.83)	df=2 p=0.3828**

Sources: Survey Data, 2023. *Significant, **Not Significant

DETERMINANTS OF STUNTING

Several socio-economic, demographic, and environmental factors were found to be significantly associated with stunting among the children in this study. Key determinants of stunting include maternal health, access to clean water, birth timing, and socioeconomic status.

Maternal Diet During Pregnancy: A significant determinant of stunting was the adequacy of the mother's diet during pregnancy. Children whose mothers had an adequate diet during pregnancy had a lower incidence of stunting ($p = 0.0247$). Of the 21 children whose mothers had an adequate diet, 76.19 per cent were classified as usual, compared to only 55.94 per cent of children whose mothers had an inadequate diet.

Birth Timing: The timing of the child's birth also had a significant impact on stunting. Children born prematurely had a much higher incidence of severe stunting, with 57.14 per cent of premature children classified as severely stunted ($p=0.0007$).

Socioeconomic Status: The economic status of families was a significant factor in the prevalence of stunting. Children from Below Poverty Line (BPL) households had a higher rate of stunting (36.05% moderate, 20.93% severe) compared to children from Above Poverty Line (APL) households (25.16% moderate, 14.01% severe) ($p = 0.0031$). This emphasises the impact of household income and resources on child nutrition and growth outcomes.

Parental Education: The education level of both parents, particularly the mother, was significantly correlated with stunting. Children whose mothers had higher education (secondary or higher) had a significantly lower prevalence of stunting. Similarly, children of fathers with higher education levels (especially those with higher education) were also less likely to be stunted ($p = 0.0100$).

Access to Clean Water and Sanitation: Access to clean drinking water and sanitation facilities was a critical factor. Children from households with access to tap water were less likely to experience stunting compared to those with less reliable water sources, such as natural springs. Similarly, the availability of toilets at home showed a positive correlation with normal growth, with children from households with toilets experiencing better nutritional outcomes ($p = 0.5582$).

Nutritional Practices: Dietary practices, such as the frequency of fruit consumption, also played a role in stunting. Children who ate fruits more frequently (3-4 times a week) had lower rates of stunting compared to those who rarely or never ate fruits. However, the association was not statistically significant ($p = 0.4208$), indicating that while dietary diversity is important, other factors, such as overall food security and the quality of the diet, may have a more significant impact.

Physical Activity: The amount of physical activity per day was another factor explored. However, the relationship between physical activity levels and stunting was not statistically significant ($p = 0.6273$), suggesting that physical activity alone may not be a key determinant of stunting in this population.

DISCUSSION

This study reveals several critical insights into the prevalence and determinants of stunting among school-going children in Jammu & Kashmir. The overall prevalence of stunting (43%, combining moderate and severe cases) is notably high, particularly among Scheduled Tribe (ST) children, indicating a serious public health concern that requires immediate attention. These findings are consistent with those of a study conducted in Jammu and Kashmir. (Katoch et al., 2022).

A key finding is the significant disparity between ST and General category children, with ST children showing higher rates of both moderate (31.5%) and severe stunting (16.5%). This disparity aligns with previous research highlighting the vulnerability of marginalised communities to malnutrition and poor health outcomes (IIPS & ICF, 2016). The higher prevalence among younger children (ages 6-7) suggests that early intervention is crucial for preventing long-term growth deficits.

Maternal health and nutrition during pregnancy have emerged as critical determinants, with children of mothers who had adequate prenatal nutrition showing significantly better outcomes. This finding reinforces the intergenerational nature of malnutrition and the importance of maternal health programs. Similarly, the strong association between premature birth and stunting emphasises the need for comprehensive prenatal care and monitoring.

Socioeconomic factors, particularly household income and parental education, demonstrated strong correlations with stunting prevalence. The significantly higher rates of stunting among children from Below Poverty Line (BPL) families highlight how economic disadvantage translates into poor nutritional outcomes. The protective effect of parental education, especially the father's education in this context, suggests that improving educational access could have indirect benefits for child nutrition. Various previous studies support these arguments (Katoch & Sharma, 2016; Muiru et al., 2014).

Environmental factors, including access to clean water and proper cooking facilities, also showed significant associations with stunting. The lower prevalence of stunting in households with separate kitchen facilities points to the potential impact of indoor air pollution and hygiene practices on child growth and development. These findings suggest the need for a multi-faceted approach to addressing stunting, combining nutritional interventions with broader social and economic development initiatives. Particular attention should be paid to vulnerable ST communities, with targeted interventions

addressing both immediate nutritional needs and underlying socioeconomic disparities.

CONCLUSION AND RECOMMENDATIONS

The study on child stunting in Jammu & Kashmir reveals a concerning prevalence of stunting, particularly among Scheduled Tribe children, with an overall rate of 43 per cent. This highlights a significant public health issue that requires urgent attention. The findings suggest that various socio-economic and environmental factors contribute to the nutritional status of children, highlighting the complexity of stunting as a multifaceted issue. Key determinants identified include maternal education, socioeconomic status, and access to safe drinking water. Children from families with lower economic status, particularly those classified as Below Poverty Line (BPL), exhibited higher rates of stunting. Additionally, maternal education emerged as a critical factor, with children of mothers who had no formal education being more likely to experience stunting. This highlights the importance of educational interventions designed to enhance maternal knowledge about nutrition and childcare. The type of cooking area and the availability of safe drinking water also played significant roles in influencing stunting rates. Households using open cooking areas and lacking access to safe drinking water were associated with higher instances of stunting, indicating the need for improved infrastructure and sanitation facilities.

In summary, addressing child stunting in Jammu & Kashmir necessitates a comprehensive approach that includes targeted nutritional interventions, educational programs for mothers, and improvements in socio-economic conditions. Policymakers and health practitioners must collaborate to implement strategies like immediate nutritional support for vulnerable children, enhanced focus on prenatal nutrition and care, programs targeting poverty alleviation and improving parental education, better access to clean water, sanitation, and cooking facilities to enhance household health conditions and exceptional attention to ST communities to address immediate nutritional needs and the underlying socio-economic disparities. By doing so, we can work towards reducing the prevalence of stunting and improving the overall health and well-being of children in the region, ultimately contributing to a healthier future generation.

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