

Inter-Relationship between Undernutrition in Children and Population of Tribal Children in Districts of Rajasthan

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Abstract:

Remote parts of southern Rajasthan (such as Dungarpur, Pratapgarh, Rajsamand and Udaipur) and southern eastern Rajasthan (such as Banswara, Bundi etc.) have tribal groups predominate and a high prevalence of unskilled labour and seasonal migration. Rajasthan is among the States with the highest prevalence of malnutrition in children under five years of age. About 32% of the children in Rajasthan are stunted, 17% are Wasted, 8% are Severely Wasted, and 28% are underweight. This research paper explores the possible interplay between Undernutrition in Children and Tribal Children of 0-5 Years (% to total state) in Districts of Rajasthan to see whether Districts have more Tribal Children have more Under-nutritional status. Correlation and Regression analysis was used to study the relationship between Undernutrition among children under five years of age and Tribal Children of age group 0-5 Years in 33 Districts of Rajasthan using data from the National Family Health Survey-4 for the year 2015-16 and Census 2011. We find that the Population of Tribal Children of age group 0-5 years (%) has a high Negative correlation coefficient with the Underweight and has Medium Negative correlation coefficient with the Stunted, Wasted and Severely Wasted Children. There is a need to make extra efforts to provide nutrition to Tribal Children in the age group 0-5 years to improve Undernutrition among them.

Keywords: Undernutrition, Nutrition, Children, Tribal, Population, Districts of Rajasthan.

Background

Undernutrition occurs when children do not consume enough calories, protein or micronutrients to maintain good health. It is common globally and may result in both short and long-term irreversible adverse health outcomes. Undernutrition is one of the leading causes of childhood mortality worldwide.

As per NFHS-4, Rajasthan is among the States with the highest prevalence of malnutrition in children under the age of five. About 32% of the children in Rajasthan are stunted, 17% are Wasted, 8% are Severely Wasted, and 28% are underweight.

Review of Literature

GoI and UNICEF (2014a) surveyed and found that on this barometer of nutritional deprivation, tribal children face the worst among all social groups in the country. The prevalence of being underweight is 13% higher among them compared to the children in the other³ category.

Mohan Pavitra et al. (2016) find that child malnutrition has normalised within Tribal Migrant Communities. Others often consider their malnourished children normal unless they are very sick or severely malnourished. Extreme and structural deprivation in the region, Busy, exhausted mothers, over half of whom are malnourished themselves, were found to be taking care of their children with extremely limited resources or opportunities to develop their knowledge of nutrition are accountable for this issue. Therefore, they argued that the dual burden of lack of food and care is interacting insidiously at the household level to undermine the nutritional status of children in southern Rajasthan.

Thorat and Sabharwal (2011) analysed with the help of data from NFHS-3 that Malnutrition levels in Tribals are higher than in other social categories. More concern is that decline in child malnutrition among tribal children over the three rounds of NFHS is slower than those from different social categories.

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³“Other” has been used to denote a residual group of children excluding those from vulnerable categories of Scheduled Caste, Scheduled Tribe and Other Backward Classes (GoI and UNICEF 2014a, 2014b).



Dey, Uposoma & Bisai, Samiran (2019) identified 41 papers on the nutritional status of tribal preschool children and included them in a meta-analysis. The meta-analysis revealed that the average rate of prevalence of underweight, stunting and wasting among the preschool tribal children of India was 42.96%, 44.82% and 23.69%. These rates vary among the different tribal groups of other states associated with their socio-economic status (10%), their cultures of food consumption (10%), maternal education (15%), child feeding practices (20%), dietary deficit during pregnancy (25%) and poor nutrition of the child (52%).

Kabir et al. (2016) observed a Significant association between family income and malnutrition status. Furthermore, younger mothers aged < 20 years were more prone to have underweight and wasted children than their older counterparts. The study pinpointed that adivasi (tribal) people's standard of living needs to be improved, and socio-demographic issues need to be addressed to tackle the malnutrition status of their children.

Ghosh S, Varerkar SA (2019) confirmed in their study that despite several nutrition programmes, the extent of Undernutrition has remained extremely high in the children living in predominantly tribal rural areas of Palghar district, Maharashtra. One of the possible reasons for a persistently high level of Undernutrition among tribal children is the decline in the budgetary allocation for ICDS in recent years. As the leading underlying cause of Undernutrition among the tribal children is the poor socio-economic conditions of the tribal population, there is a need for a multi-pronged strategy for redressing this problem. There is a need to increase the budgetary allocation for nutrition-specific interventions and ensure appropriate usage of funds. There is an urgent need to strengthen the implementation mechanism of the Public Distribution System in the tribal areas. There is a need to ensure that tribal families are not deprived of the ration they are entitled to because of issues like non-possession of the card. Besides that, Government should seriously consider providing other nutritious food items through PDS in the tribal areas so that the nutritional needs of the tribal children and adults are met and the problem of micronutrient deficiencies is effectively addressed. There is also a need to improve the child care and feeding practices. The positive practices related to exclusive breastfeeding during the first half of infancy and continued breastfeeding through the second year of life and beyond encountered in the population should be vigorously promoted. Practices that require attention are the delay in introducing complementary foods and the low dietary diversity. This should be addressed by educating the women about child care and feeding practices from the time they become pregnant.

Debnath Avijit and Bhattacharjee Nairita (2014) Suggest that malnutrition among tribal children results from multiple factors. Their analysis shows that breastfeeding practice, economic status, antenatal care of mother and women's decision-making autonomy are negatively associated with malnutrition among tribal children in India. They identify maternal malnutrition and urban concentration of households as the two risk factors for child malnutrition. The identified associated factors may be used for designing and targeting preventive programmes for malnourished tribal children. In contrast to conventional thought, they found that the condition of tribal children is far more critical in urban locations.

Kumar, P., Sonekar, H., Banerjee, A. et al. (2021) find that the overall prevalence of stunting, wasting and underweight among tribal children under three years of age was 41%, 30% and 43%, respectively (from NFHS-4). Child age, sex, size at birth, age of the women at first birth and their education, duration of breastfeeding, religion, and wealth index are significantly associated with malnutrition among tribal children. Stunting is more likely among tribal families with two or more children. On the other hand, the probability of being underweight is more likely among tribal children suffering from diarrhoea and fever. Place of residence, community education, and community wealth significantly positively affect stunting, wasting, and underweight, respectively. The study recommended the implementation of policies specific to the tribal population through improving individual as well as community-level education to ensure the reduction in malnourishment among tribal children in India. Besides it, services provided should be made accessible to tribals.

Objective

This paper highlights the Tribal Children of age group 0-5 Years (% of the total state) and Undernutrition in Children in 33 Districts of Rajasthan. This research paper explores the possible interplay between Undernutrition in Children and Tribal Children of 0-5 Years (% to total state) in



Districts of Rajasthan to see whether Districts have more Tribal Children have more Undernutritional status.

Methods

For this purpose, Correlation and Regression analysis was used to study the relationship between Undernutrition among children under five years of age and Tribal Children of age group 0-5 Years in 33 Districts of Rajasthan using data from the National Family Health Survey-4 for the year 2015-16 and Census 2011. We regress the dependent variable with the independent variables individually.

The significance of variables with the level of significance is denoted as follows:

- * Significant at 1% level of significance
- ** Significant at 2% level of significance
- *** Significant at 5% level of significance

Status of Tribal Children of age group 0-5

**Table 1: Population of Tribal Children of age group 0-5 years
(% to total state Tribal Population)**

S. No.	District	Tribal Children of age group 0-5 Years (% to total state Tribal Population)
1	Udaipur	18.51
2	Banswara	15.87
3	Dungarpur	11.29
4	Pratapgarh	6.37
5	Jaipur	4.74
6	Dausa	3.93
7	Sirohi	3.88
8	Karauli	2.84
9	Baran	2.78
10	Alwar	2.48
11	Bhilwara	2.43
12	Barmer	2.39
13	Sawai Madhopur	2.27
14	Chittorgarh	2.20
15	Jalore	2.18
16	Bundi	2.06
17	Rajsamand	1.91
18	Jhalawar	1.76
19	Pali	1.67
20	Tonk	1.60
21	Kota	1.58
22	Jodhpur	1.52
23	Sikar	0.66
24	Ajmer	0.63
25	Dholpur	0.61
26	Jaisalmer	0.59
27	Bharatpur	0.42
28	Jhunjhunu	0.34
29	Hanumangarh	0.12
30	Ganganagar	0.12
31	Nagaur	0.10
32	Churu	0.09
33	Bikaner	0.07



S. No.	District	Tribal Children of age group 0-5 Years (% to total state Tribal Population)
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(Source: Computed from Census 2011)

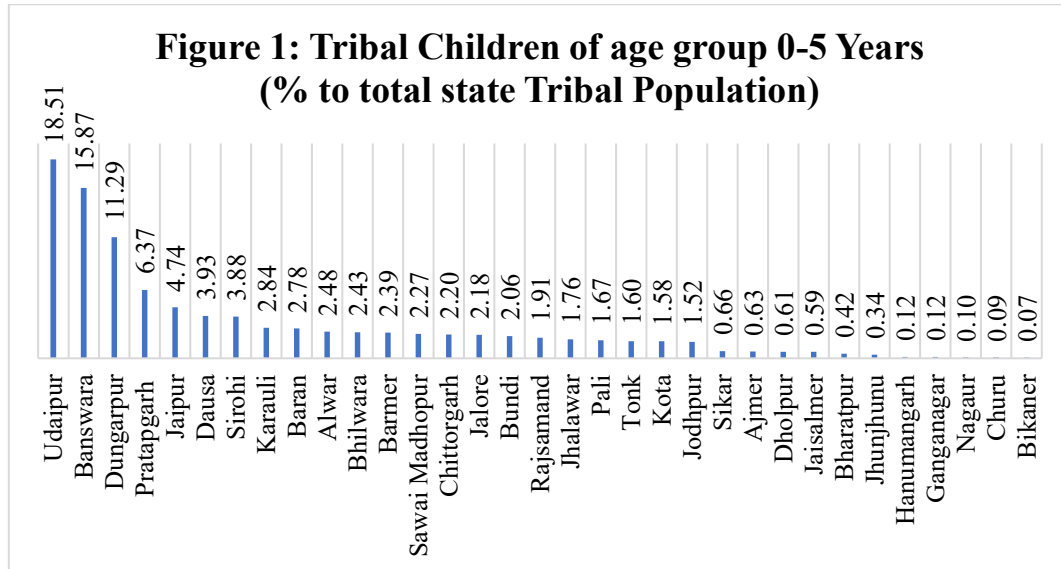


Figure 1 shows that Udaipur has the highest number of Tribal Children at 18.51 percent, followed by Banswara at 15.87 percent, Dungarpur at 11.29 percent and Pratapgarh at 6.37 percent. Bikaner has the Lowest number of Tribal Children at 0.07 percent, followed by Churu at 0.09 percent and Nagaur at 0.10 percent.

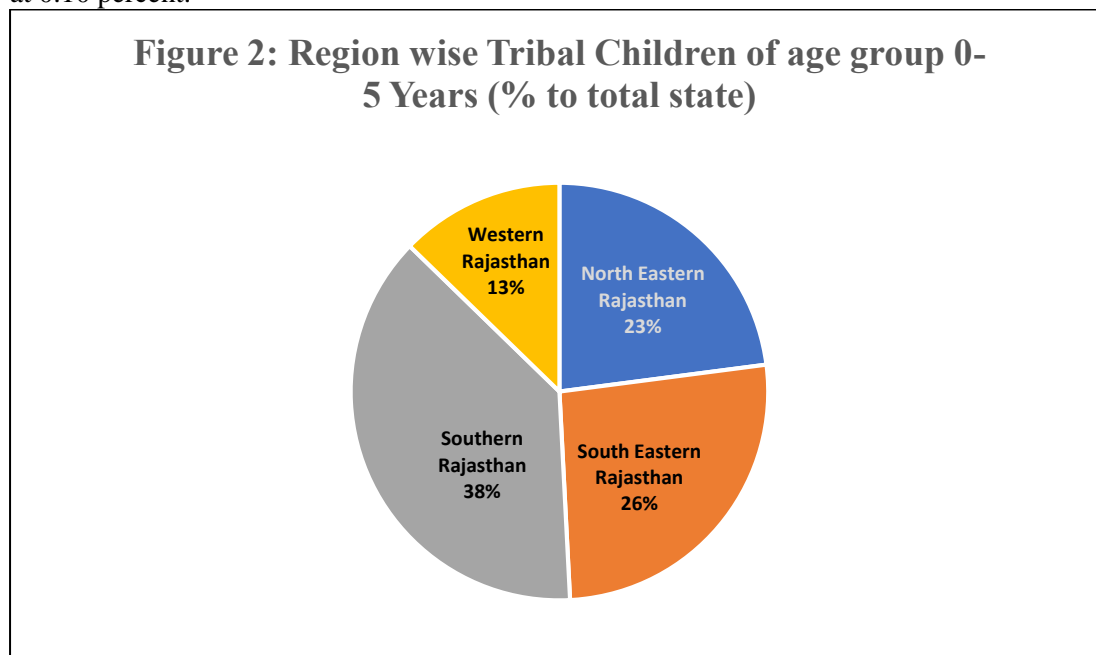


Figure 2 shows that Southern Rajasthan has maximum (38%) Tribal Children of age group 0-5 Years, followed by South Eastern Rajasthan at 26% and North Eastern Rajasthan at 23%. Southern and South Eastern Rajasthan have 64% Tribal Children of 0-5 Years.

Status of Undernutrition in Children

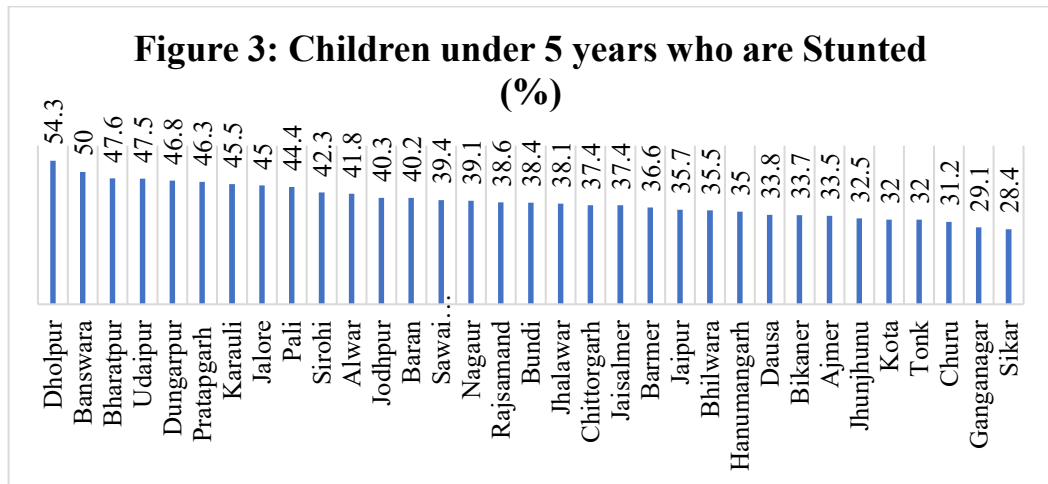
Table 2: Undernutrition in Children in Districts of Rajasthan (%)

S. No.	District	Stunted	Wasted		Underweight
		Children under 5 years who are	Children under 5 years who are	Children under 5 years	Children under 5 years who are

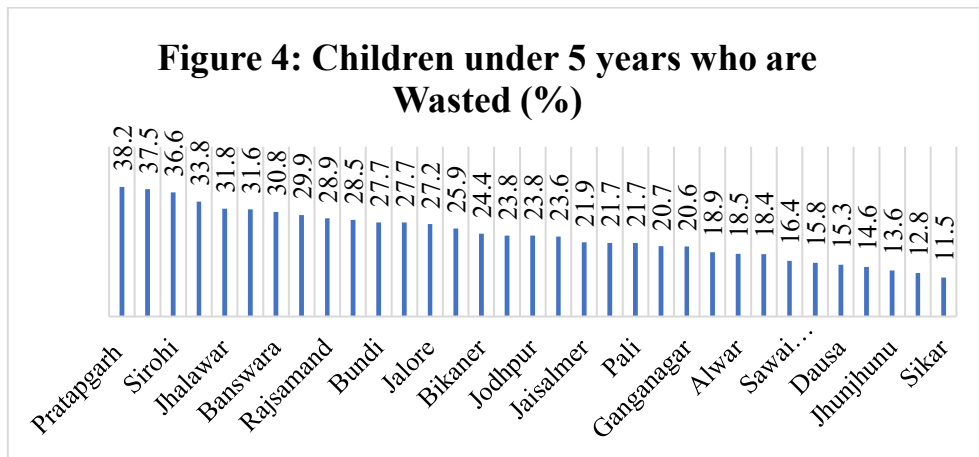


S. No.	District	Stunted	Wasted		Underweight
		Stunted (%)	Wasted (%)	who are Severely Wasted (%)	Underweight (%)
1	Ajmer	33.5	31.6	12.2	39.6
2	Alwar	41.8	18.5	8.7	35.6
3	Banswara	50	30.8	12	50.7
4	Baran	40.2	28.5	10.6	41.1
5	Barmer	36.6	25.9	9.1	39.6
6	Bharatpur	47.6	14.6	6.7	30.9
7	Bhilwara	35.5	33.8	12.9	42.6
8	Bikaner	33.7	24.4	9.5	33.2
9	Bundi	38.4	27.7	8.6	43.4
10	Chittorgarh	37.4	23.8	8.7	41.9
11	Churu	31.2	21.7	9.4	27.1
12	Dausa	33.8	15.3	6	28.1
13	Dholpur	54.3	15.8	4.8	39.8
14	Dungarpur	46.8	37.5	16.1	53.4
15	Ganganagar	29.1	20.6	5.8	29.3
16	Hanumangarh	35	20.7	7.6	23.4
17	Jaipur	35.7	12.8	4.2	25.2
18	Jaisalmer	37.4	21.9	10.2	37.4
19	Jalore	45	27.2	9.1	42.7
20	Jhalawar	38.1	31.8	13.9	47.2
21	Jhunjhunu	32.5	13.6	5	19.5
22	Jodhpur	40.3	23.8	9	38.6
23	Karauli	45.5	18.9	5.8	35.7
24	Kota	32	27.7	7.6	39.7
25	Nagaur	39.1	18.4	7	31.4
26	Pali	44.4	21.7	6.5	41.3
27	Pratapgarh	46.3	38.2	15.1	54.6
28	Rajsamand	38.6	28.9	11.8	38.8
31	Sawai Madhopur	39.4	16.4	5.5	34.4
29	Sikar	28.4	11.5	4.1	20.5
30	Sirohi	42.3	36.6	15.6	50.4
32	Tonk	32	23.6	5	37.3
33	Udaipur	47.5	29.9	11.4	52

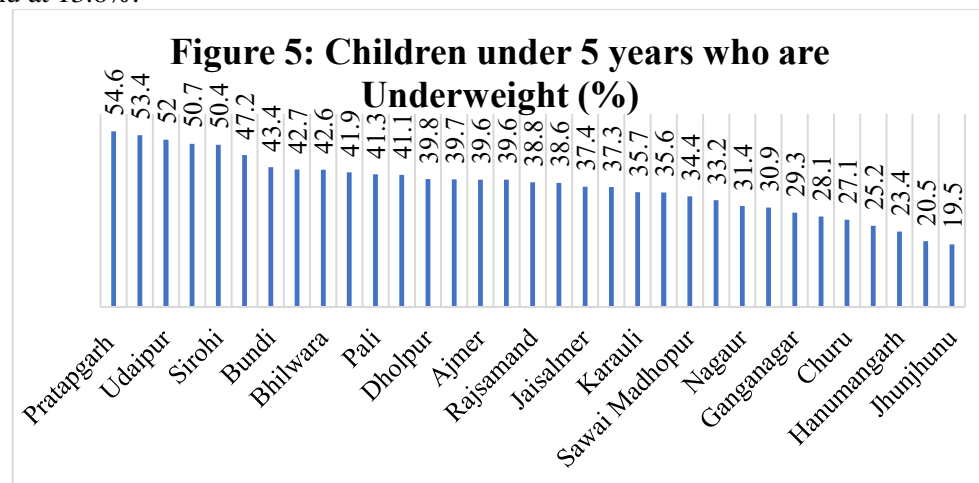
(Source: NFHS 4 (2015-16))



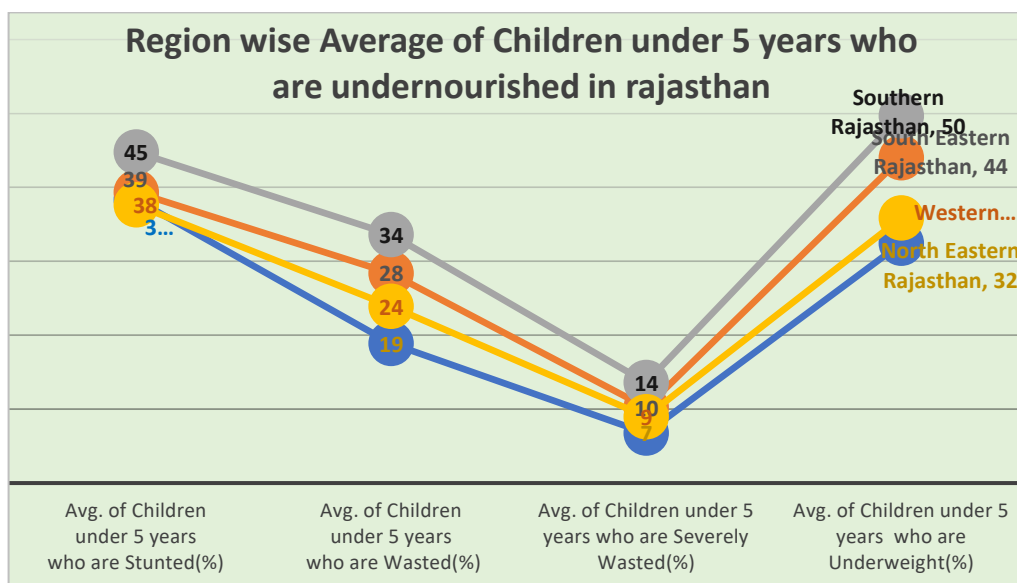
As per Figure 3, Dholpur has the highest stunting rate at 54.3%, followed by Banswara at 50% and Bharatpur at 47.6%. Sikar has the lowest stunting rate at 28.4%, followed by Ganganagar at 29.1% and Churu at 31.2%.



As per Figure 4, Pratapgarh has the highest rate of wasting at 38.2%, followed by Dungarpur at 37.5% and Sirohi at 36.6%. Sikar has the lowest stunting rate at 11.5%, followed by Jaipur at 12.8% and Jhunjhunu at 13.6%.



As per Figure 5, The survey shows that Pratapgarh has the highest number of underweight children at 54.6%, followed by Dungarpur at 53.4% and Udaipur at 52%. Jhunjhunu has the Lowest rate of underweight children at 19.5%, followed by Sikar at 20.5% and Hanumangarh at 23.4%.



Results

Table 3: The top 4 Districts have Tribal Children of age group 0-5 years and Underweight Children

S. No.	District	Rank	
		Tribal Children of age group 0-5 (% to total state Tribal Population)	Children under 5 years who are Underweight (%)
1	Udaipur	1	3
2	Banswara	2	4
3	Dungarpur	3	2
4	Pratapgarh	4	1

Table 1 shows that the top 4 districts with Tribal Children of age group 0-5 years also have the top 4 ranks for Underweight Children.

Correlation between Undernutrition and Population of Tribal Children of age group 0-5 years

The correlation coefficients (r) of the Tribal Children of age group 0-5 years with the Variables of Undernutrition are discussed below:

**Table 4: Correlation Matrix:
Undernutrition and Population of Tribal Children of age group 0-5 years**

	<i>Children under 5 years who are Stunted (%)</i>	<i>Children under 5 years who are Wasted (%)</i>	<i>Children under 5 years who are Severely Wasted (%)</i>	<i>Children under 5 years who are Underweight (%)</i>	<i>Tribal Children of age group 0-5 years (% to total state)</i>
Children under 5 years who are Stunted (%)	1.00				
Children under 5 years who are Wasted (%)	0.24	1.00			



Children under 5 years who are Severely Wasted (%)	0.29	0.92	1.00		
Children under 5 years who are Underweight (%)	0.61	0.85	0.77	1.00	
Tribal Children of age group 0-5 years (% to total state)	0.51*	0.43**	0.43**	0.60*	1.00

Table 4 shows that the Population of Tribal Children of age group 0-5 years (%) has a Moderate Significant Positive correlation coefficient (0.50 to 0.75) with Stunted & Underweight Children and has Low Positive correlation coefficient (0.25 to 0.50) with the Wasted and Severely Wasted Children. i.e., Tribal Children have a strong relationship with all forms of Undernutrition.

Conclusions & Suggestions

The population of Tribal Children of age group 0-5 years has a Positive significant correlation with Undernutrition. i.e., Districts that have more Tribal Children have more Undernutritional Children. Thus, there is a need to make extra efforts to provide nutrition to Tribal Children of age group 0-5 years to improve Undernutrition among them.

Child malnutrition in tribal areas can be addressed by implementing local solutions and adopting policy reforms. Nation/States can accelerate their development by combating Undernutrition in tribal children using a whole-system and whole-community approach.

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