SOMATIC STATUS AMONG SOLIGA POPULATION OF B.R. HILLS IN CHAMARAJANAGARA DISTRICT, KARNATAKA

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Abstract:

The purpose of this research paper is to investigate and understand the somatic status of the Soliga population living in the B.R. Hills region of Chamarajanagara District, Karnataka. This study aims to assess their physical well-being, including aspects like anthropometric measurements and overall health. Researchers employed a cross-sectional study design for data collection. A representative sample of the Soliga population was selected using random sampling techniques. The study involved anthropometric measurements, health surveys, and interviews to collect data on the physical characteristics and health status of the Soliga people. Data was analyzed using appropriate statistical methods to draw meaningful conclusions. The study revealed that a significant portion of the Soliga population in B.R. Hills falls below the recommended nutritional and health standards, resulting in various health challenges.

INTRODUCTION

The Soliga population, an indigenous tribal group, inhabits the picturesque region of B.R. Hills in the Chamarajanagara District of Karnataka, India. This community an integral part of the rich cultural and ecological tapestry of the region and have a distinct way of life deeply intertwined with the surrounding forests and hills. The Soliga people have a long history of coexistence with the unique ecosystem of B.R. Hills, which is characterized by lush forests, diverse flora and fauna, and undulating landscapes. Their livelihoods traditionally revolve around forest-based activities such as hunting, gathering, and shifting cultivation, and they have a profound understanding of the natural resources and biodiversity in the area.

B.R. Hills, or Biligirirangan Hills, serves as the backdrop to the Soliga way of life. These hills, a part of the Eastern

Ghats, are not only a source of sustenance but also a spiritual and cultural sanctuary for the Soliga people. The region is known for its breathtaking landscapes, wildlife sanctuaries, and an array of plant and animal species that are essential to the Soliga culture and their traditional practices. The Soliga population's unique cultural identity is closely linked to their environment. They have developed a deep knowledge of the flora and fauna, passed down through generations, and have a strong spiritual connection with the land. Their traditional knowledge and practices play a crucial role in maintaining the ecological balance of the B.R. Hills.

However, the Soliga population faces various challenges, including issues related to land rights, conservation efforts, healthcare, and education. Understanding their somatic status and well-being is essential to addressing these challenges and ensuring the preservation of their culture and way of life. As we delve into the research on the somatic status of the Soliga population in B.R. Hills, it is important to recognize the cultural and environmental context that shapes their lives and contributes to the significance of this study. This research seeks to shed light on the health and well-being of the Soliga people and, in doing so, aims to contribute to their overall betterment while respecting and preserving their unique cultural heritage.

SIGNIFICANCE OF THE STUDY:

Studying the somatic status of the Soliga population is not only crucial for their health and well-being but also for the preservation of their culture, empowerment, and the promotion of social justice. It provides valuable insights that can guide healthcare initiatives, cultural preservation efforts, and policies that aim to improve the overall quality of life for this indigenous community.

RESEARCH OBJECTIVES OF THE STUDY

1. To assess the nutritional status of the Soliga population in B.R. Hills.
2. To examine the prevalence of stunted growth and underweight individuals within the Soliga community.
3. To investigate the impact of sociodemographic factors on somatic status among the Soliga population.
4. To understand the health-related challenges and disparities faced by the Soliga population.
5. To provide evidence-based recommendations for improving the somatic status and overall well-being of the Soliga population in B.R. Hills.

RESEARCH DESIGN

This is Cross-Sectional Study. In a cross-sectional study of the somatic status among the Soliga population of B.R. Hills, a systematic and random sampling method would be employed to select participants. Here's how the sampling process might be conducted:

Identification of Clusters: B.R. Hills may be divided into clusters or villages where the Soliga population resides. These clusters should be carefully identified to ensure comprehensive coverage of the population.

Random Cluster Selection: A random selection of clusters would be made to avoid bias. This ensures that the study captures a diverse range of Soliga communities within B.R. Hills.

Household Sampling: Within the selected clusters, simple random sampling method could be used to select households. The sample size is 200 household.

Informed Consent: In each selected household, all eligible individuals who consent to participate would be included. Informed consent should be obtained from the participants or their legal guardians, considering ethical considerations.

RESULT AND DISCUSSION

The present study consists of a sample of 200 families comprising 751 individuals of Soliga community in B.R.Hills Chamarajanagara, it consists of 370 male and 381 female

Table 1: Type of family how Soligas live together

Type of Family	Count	Percentage
Nuclear	190	95.0
Joint	7	3.5
Extended	3	1.5
Total	200	100.0

Table 1 shows the type of family Soligas live with. Studying the above table it is seen that 95% of the people stay as a Nuclear family, 3.5% of them stay as Joint family and 1.5% of the people stay in Extended family.

Table 2: Distribution of Family size of the Soliga Population of B.R.Hills

Family Size	Count	Percentage
Small (1-4)	166	83.0
Medium(5-8)	29	14.5
Large(9-16)	5	2.5
Total	200	100.0

Table 2 shows the family size Soligas live with, 83.5% of them have family size small with maximum of 4 people, 14.5% of them have a medium family size with 5-8 members and 2.5% of the families have large family size with 9-16 members.

In the age group of 10 years and below the, the mean height for male is 124.41cm and 123.17cm for female. In the same age group, the mean body weight of male for the same age group is 21.77Kg and for female is 21Kg. The mean BMI for male is (14.02 ±2.74) and BMI for female is (13.776 ±1.42).

We can observe in this age group that the mean height of male is greater than mean height of female by 1.24cm, mean weight of male is greater than female by 0.77Kg and mean BMI of male is greater than female by 0.25 of that of female

For the age group of 11-20 years, the mean body height for male is 152.81cm and 149.04cm for females. In the same age group mean weight for male is 36.88Kg and 35.29Kg for female. The mean BMI for male among 11 to 20 years is (15.496 ±4.45) and (15.816 ±6.19) for female.

Table 3: Distribution of mean Height, Weight and BMI circumference of Soliga population

Age groups	Gender	n	Height(cm)		Weight (kg)		BMI (cm)	
			Mean	SD	Mean	SD	Mean	SD
<=10 years	Male	39	124.41	11.96	21.77	5.48	14.02	2.74
	Female	12	123.17	7.57	21.00	3.62	13.77	1.42
	Total	51	124.12	11.03	21.59	5.08	13.96	2.48
11 to 20 years	Male	59	152.81	12.26	36.88	12.91	15.49	4.45
	Female	72	149.04	7.98	35.29	14.72	15.81	6.19
	Total	131	150.74	10.26	36.01	13.90	15.66	5.46
21 to 30 years	Male	86	159.16	8.00	43.86	13.86	17.33	5.18
	Female	115	152.15	5.32	43.26	9.67	18.72	4.26
	Total	201	155.15	7.45	43.52	11.62	18.12	4.72
31 to 40 years	Male	66	160.64	7.75	47.76	19.17	18.71	7.54
	Female	71	152.55	7.23	44.04	13.71	18.96	5.82
	Total	137	156.45	8.49	45.83	16.61	18.84	6.68
41 to 50 years	Male	56	158.23	7.05	40.30	17.31	16.43	7.29
	Female	57	153.23	5.15	36.12	21.28	15.57	9.18
	Total	113	155.71	6.64	38.19	19.44	16.00	8.27
51 to 60 years	Male	39	156.87	4.34	50.15	11.51	20.54	5.16
	Female	27	153.04	5.39	44.63	9.39	19.10	4.05
	Total	66	155.30	5.12	47.89	10.97	19.95	4.76
61 to 70 years	Male	10	156.70	3.83	51.10	3.78	20.82	1.41
	Female	14	155.00	6.98	44.50	11.71	18.67	4.96
	Total	24	155.71	5.83	47.25	9.71	19.56	3.98
71 years above	Male	8	157.25	1.39	42.75	15.26	17.26	6.16
	Total	8	157.25	1.39	42.75	15.26	17.26	6.16

In this age group the mean height of male is greater than female by 3.77cm; the mean weight of male is greater than female by 1.59Kg but the BMI of female is greater than male by 1.74.

Among the age group of 21-30 years, the mean height of male is 159.16cm and mean height of female is 152.15cm. The mean weight of male is 43.86Kg and 43.26Kg is the mean weight for female.

The mean BMI for male is (17.33±5.18) and (18.72±4.26) for female.

The mean height of male is greater than female by 7.01cm, the mean weight of male is greater than female by 0.6 Kg and the mean of BMI of female is greater than male by 1.39

In the age group of 31-40 years, the mean height of male is 160.64cm and mean height of female is 152.55cm. The mean weight of male is 47.76Kg and 44.04Kg is

the mean weight for female. The mean BMI for male is (18.71±7.54) and (18.96±5.82) for female.

In this age group the mean height of male is greater than female by 8.09cm, the mean weight of male is greater than female by 3.72Kg and the mean BMI of female is greater than male by 0.25

Studying the age group of 41-50 years, the mean height for male is 158.23cm and 153.23cm for female. In the same age group, the mean body weight of male for the same age group is 40.30Kg and for female is 36.12Kg.The mean BMI for male is (16.43 ±7.29) and mean BMI for female is (15.57±9.18).

Among this age group the mean height of male is greater than female by 5cm, the mean weight of male is greater than female by 4.18 Kg and mean BMI of male is greater than female by 0.86.

Coming to the age group of 51-60 years, the mean height for male is 156.87cm and 153.04cm for female. In the same age group, the mean body weight of male for the same age group is 50.15Kg and for female is 44.63Kg.The mean BMI for male is (20.54±5.16) and mean BMI for female is (19.10±4.05).

In this age group the mean height of male is greater than female by 3.83cm, the mean weight of male is greater than female by 5.5 2Kg and mean BMI of male is greater than male by 1.44.

For the age group of 61-70 years, the mean height of male is 156.70cm and mean height of female is 155cm. The mean weight of male is 51.10Kg and

44.50Kg is the mean weight for female. The mean BMI for male is (20.82±1.41) and (18.67±4.96) for female. The mean height of male is greater than female by 1.70cm, the mean weight of male is greater than female by 6.6Kg and mean BMI of male is greater than female by 2.15

Considering the age group 71 years and above, the mean height of male is 157.25 cm and mean weight of male from the same age group is 42.75 Kg and mean BMI is (17.26±6.16).

We could observe that there is a constant increase in height of male from the age of below 10 years to age group of 31-40 years and then a decrement in mean height can be seen from 41-50 years age group. But constant increase of mean height of female can be seen among all age groups. Continuous increase of weight in males and females is observed across all age groups.

Mid upper arm circumference (MUAC) that allows health workers to quickly determine if a patient is acutely malnourished is calculated by placing the MUAC tape on the upper middle region of left ram of the patient.

In the age group of 10 and below the mean value for MUAC for male is 16.67 cm and 16.08 cm for male. The mean chest measurement for male is 52.79 cm and 51.08 cm, the mean waist measurement for male is 51.08 cm and 47.42 cm and mean hip measurement for male is 59.26 cm and for that of female is 59.75 cm.

Table 4: Distribution of mean MUAC, Chest, waist and Hip circumference of Soliga population

Age groups	Gender	n	MUAC (cm)		Chest (cm)		Waist (cm)		Hip (cm)	
			Mean	SD	Mean	SD	Mean	SD	Mean	SD
<=10 years	Male	39	16.67	1.08	52.79	7.65	51.08	5.10	59.26	4.01
	Female	12	16.08	1.00	51.08	3.90	47.42	5.23	59.75	7.25
	Total	51	16.53	1.08	52.39	6.95	50.22	5.31	59.37	4.88
11 to 20 years	Male	59	17.93	8.89	69.34	13.42	61.64	8.27	71.05	17.18
	Female	72	20.74	6.23	73.61	14.61	62.74	17.04	69.40	24.30
	Total	131	19.47	7.64	71.69	14.19	62.24	13.76	70.15	21.33
21 to 30 years	Male	86	21.62	5.93	73.59	22.53	65.57	20.45	76.83	17.20
	Female	115	23.50	12.36	76.38	17.04	55.64	27.23	75.88	18.15
	Total	201	22.70	10.15	75.19	19.57	59.89	24.99	76.28	17.71
31 to 40 years	Male	66	23.24	5.74	73.50	25.96	71.85	21.52	81.03	20.03
	Female	71	24.55	2.22	76.35	21.24	72.77	7.63	79.13	20.42
	Total	137	23.92	4.33	74.98	23.59	72.33	15.86	80.04	20.18
41 to 50 years	Male	56	25.34	1.91	54.21	36.50	55.41	27.61	75.54	21.46
	Female	57	24.49	3.85	83.51	12.18	70.54	17.22	67.23	34.55
	Total	113	24.91	3.06	68.99	30.74	63.04	24.09	71.35	28.99
51 to 60 years	Male	39	23.67	1.53	72.18	25.40	59.00	28.28	79.97	15.76
	Female	27	24.11	1.42	78.41	14.64	70.81	9.13	87.37	7.21
	Total	66	23.85	1.49	74.73	21.73	63.83	23.13	83.00	13.39
61 to 70 years	Male	10	23.30	0.82	82.70	0.82	74.10	0.32	74.70	23.60
	Female	14	23.07	0.92	80.14	2.98	78.71	6.28	89.50	5.50
	Total	24	23.17	0.87	81.21	2.64	76.79	5.27	83.33	17.05
71 years above	Male	8	23.38	0.52	82.25	0.71	74.50	2.20	71.75	25.89
	Total	8	23.38	0.52	82.25	0.71	74.50	2.20	71.75	25.89

In this age group the mean MUAC for male is greater than female by 0.56 cm, the mean measurement of chest for male is greater than female by 1.71 cm, the mean waist measurement for male is greater than female by 3.66 cm and the

mean hip measurement for female is greater than male by 0.49 cm.

For the age group of 11-20 years, the mean MUAC for male is 17.93 cm and 20.74 cm for female, The mean chest measurement for male is 69.34 cm and 73.61cm, the mean waist measurement for male is 61.64 cm and 62.74 cm and mean hip measurement for male is 71.05 cm and for that of female is 69.40 cm.

In this age group, the mean MUAC for female is greater than male by 2.81 cm, the mean measurement of chest for female is greater than male by 4.27 cm, the mean waist measurement for female is greater than male by 1.1 cm and the mean hip measurement for male is greater than female by 1.65 cm.

Among the age group of 21-30 years, the mean MUAC measurement for male is 21.62 cm and 23.50 for female, the mean chest measurement for male is 73.59 cm and 76.38 cm for female, the mean waist measurement for male is 65.57 cm and 55.64 cm for that of female and the mean measurement of hip for males is 76.83 cm and 75.88 cm for female.

In this age group, the mean MUAC for female is greater than male by 1.88 cm, the mean measurement of chest for female is greater than male by 2.79 cm, the mean waist measurement for male is greater than female by 9.93 cm and the mean hip measurement for male is greater than female by 0.95 cm.

Coming to the age group of 31-40 years, the mean MUAC measurement for male is 23.24 cm and 24.55 for female, the mean chest measurement for male is 73.50 cm and 76.35 cm for female, the mean waist measurement for male is 71.85 cm and 72.77 cm for that of female and the mean measurement of hip for males is 81.03 cm and 79.13 cm for female.

In this age group the mean MUAC for female is greater than male by 1.31 cm, the mean measurement of chest for female is greater than male by 2.85 cm, the mean waist measurement for female is greater than male by 0.92 cm and the mean hip measurement for male is greater than female by 1.9 cm.

In the age group 41-50 years, the mean MUAC for male is 25.34 cm and 24.49 cm for female, The mean chest measurement for male is 54.21 cm and 83.51 cm, the mean waist measurement for male is 55.41 cm and 70.54 cm and mean hip measurement for male is 75.54 cm and for that of female is 67.23 cm.

In this age group the mean MUAC for male is greater than female by 0.85 cm, the mean measurement of chest for female is greater than male by 29.3 cm, the mean waist measurement for female is greater than male by 15.13 cm and the mean hip measurement for male is greater than female by 18.31 cm.

Studying 51-60 years, the mean MUAC for male is 23.67 cm and 24.11 cm for female, The mean chest measurement for male is 72.18 cm and 78.41 cm, the mean waist measurement for male is 59 cm and 70.81 cm and mean hip measurement for male is 79.97 cm and for that of female is 87.37 cm.

In this age group the mean MUAC for female is greater than male by 0.44 cm, the mean measurement of chest for female is greater than male by 6.23 cm, the mean waist measurement for female is greater than male by 11.81 cm and the mean hip measurement for female is greater than male by 7.4 cm.

For age group 61-70 years, the mean MUAC for male is 23.30 cm and 23.07 cm for female, The mean chest measurement for male is 82.70 cm and 80.14 cm, the mean waist measurement for male is 74.10 cm and 78.71 cm and mean hip measurement for male is 74.70 cm and for that of female is 89.50 cm. In this age group the mean MUAC for male is greater than female by 0.23 cm, the mean measurement of chest for male is greater than female by 2.56 cm, the mean waist measurement for female is greater than male by 14.8 cm and the mean hip measurement for female is greater than male by 14.8 cm.

For the age group 71 years and above, the mean MUAC for male is 23.38 cm, the mean chest measurement for male is 82.25cm, the mean waist measurement for male is 74.50 cm and the mean hip measurement is 71.75 cm.

Table 5: BMI Deficit Classification

Age groups (in years)	Sex	Under weight		Normal		Over weight		Total	χ^2	P - Value
		Count	Percentage	Count	Percentage	Count	Percentage			
<=10	M	3	7.69	34	87.18	2	5.13	39	4.38	0.111
	F	4	25.00	10	62.50	2	12.50	16		
11 to 20	M	7	11.86	40	67.80	12	20.34	59	5.19	0.074
	F	9	12.50	58	80.56	5	6.94	72		
21 to 30	M	8	9.30	71	82.56	7	8.14	86	0.63	0.726
	F	9	7.83	93	80.87	13	11.30	115		
31 to 40	M	9	12.68	58	81.69	4	5.63	71	1.47	0.478
	F	6	8.45	63	88.73	2	2.82	71		
41 to 50	M	11	19.64	43	76.79	2	3.57	56	6.49	0.038
	F	17	29.82	32	56.14	8	14.04	57		
51 to 60	M	2	5.13	36	92.31	1	2.56	39	0.91	0.632
	F	1	3.70	24	88.89	2	7.41	27		
61 to 70	M	4	36.36	6	54.55	1	9.09	11	5.09	0.078
	F	1	7.14	13	92.86	0	0.00	14		
71 & above	M	1	12.50	7	87.50	0	0.00	8	--	--
	F	0	0.00	0	0.00	0	0.00	0		

In the age group of 10 years and below, there are 87.18% of male against 62.50% of female in normal category, 25% of female against 7.69% of male in low category and 12.50% of female with 5.13% in high category χ^2=4.3 and P>0.05.

In the age group of 11-20 years, there are 80.56% of female against 67.80% of male in normal category, 12.50% of female against 11.86% of male in low category and 20.34% of male with 6.94% of female in high category with χ^2= 5.1 and P>0.05.

In the age group of 21-30 years, 82.56% of male against 80.87% of female in normal category, 9.30% of male against 7.83% of female in low category and 11.30% of female with 8.14% of male in high category with χ^2=0.6 and P>0.05.

In the age group of 31-40 years, 88.73% of female against 81.69% of male in normal category, 12.68% of male against 8.45% of female in low category and 5.63 of male and 2.63% of female in high category with χ^2 = 1.4 and P>0.05.

In the age group 41-50 years, 76.79% of male against 56.14% of female in normal category, there are 29.82% of female against 19.64% of male in low category and 14.04% of female against 3.57% of male in high category with χ^2= 6.49 and P<0.05.

In the age group of 51-60 years, 92.31% of male and 88.89% of female were in normal category, 5.13% of male and 3.70% of female were in low category,

7.41% of female and 2.56% of male were in high category with χ^2= 0.91 and P>0.05.

In the age group of 61-70 years, 92.86% of female and 54.55% of male were in normal category, 36.36% of male and 7.14% of female were in low category and 9.09% of male were in high category with χ^2=5.09 and P>0.05.

In the age group of 71 years and above, 87.50% of male were in normal category and 12.50% of male in low category with χ^2=0 and P<0.01.

CONCLUSION

The analysis of somatic status among different age groups reveals interesting patterns in height, weight, BMI, Middle Upper Arm Circumference (MUAC), chest, waist, and hip measurements. Generally, the majority of males in the 51-60 years age group exhibit normal values across various parameters, including height, weight, BMI, MUAC, chest, waist, and hip. Similarly, females in the 61-70 years age group tend to have normal measurements in most categories. However, variations exist within different age groups and parameters. Notably, a percentage of males in the 11-20 years age group fall into the high height, high BMI, and high MUAC categories. In contrast, some females in the 61-70 years age group show higher prevalence in low height, low MUAC, and high chest categories. These findings underscore the importance of considering age-specific

trends when evaluating somatic status. The data suggests diverse somatic characteristics within distinct age brackets and highlights potential areas for further investigation or intervention to address variations in health and well-being among different demographic groups.

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