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"Nutritional Status of Children Below 6 Years of Age and Its Association with Maternal Autonomy in Rural Areas of Bagalkot," Karnataka, India.

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KEYWORDS

Height for Age, Maternal autonomy, Nutritional status and Weight for Age etc.

ABSTRACT:

Background: Freedom from hunger and malnutrition is a basic human right, and their alleviation is a fundamental prerequisite for human and national development. Mothers play a vital role in determining the nutritional status of their children. The growth rate is maximal during the first 6 years of life; hence malnutrition has a direct impact on infant and under-five children health

Objectives: To assess nutritional status of children up to 6 years of age and its association with maternal autonomy at selected rural areas of Bagalkot."

Methods: A cross sectional study with a sample of 360 children, aged between, 6 months to 6 years and their mothers, was selected by disproportionate stratified random sampling technique. Structured questionnaire was used to collect baseline information, SPSS version 28 was used for statistical analysis.

Results : A significant association was found between nutritional status in terms of weight for age ($P< 0.00001$) and height for age ($P< 0.00001$) of children and their mothers' maternal autonomy at 0.01 level of significance.

Conclusions: The findings reveal that maternal autonomy has inversely Proportional impact on nutritional status of the child.

Introduction: Malnutrition in early childhood is a serious condition. If not treated in earlier period, long-term malnutrition impedes on motor, sensory, cognitive, social and emotional development.[1] In India, among every 2 children, 1 suffers with hidden hunger and among 3 children, 1 child is found to be not growing well[2]. All the factors related to mother, can influence the health of her child. One of such factors is autonomy, which includes decision making, freedom of movement and finance.[3] The united nations held an assembly on 1 April 2016 and declared the one decade as action on nutrition from 2016-2025.[4] NFHS-5[2019-20] the malnutrition rate decreased in below 5 years children from NFHS-4 the indicators rate of malnutrition are Stunting has reduced from 38.4% to 35.5%, Wasting has reduced from 21.0% to 19.3% and Underweight prevalence has reduced from 35.8% to 32.1%.[5] There is lot of importance from the nutrition, it taken as a second sustainable development goal as zero hunger and malnutrition.[6] Maternal autonomy in the family plays an undifferentiated role in maintaining and promoting a child's nutritional status.[7] In some rural areas, there are persistent problems with poverty, the environment, and other major problems that had negative effects on household food security leading to undernourishment. [8] The level of stunting among children less than 6 years has marginally declined from 38% to 36% in the country since the last 4 years but Stunting remains higher among children in Rural areas (37%) than urban areas (30%)[9]. To create awareness about 'Eating Healthy' 'Eating Safe' and 'Eating Sustainably 'among school children and the community at large.[10] Growing prevalence of

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childhood overweight and obesity 144 million children under 5 – about 21 % – are stunted. 47 million children under 5 – about 7 % – are wasted, 38 million children under 5 – nearly 6 % – are overweight.[11] To access proper nutrients for every child seems like a feasible possibility. Hope Each child should have brighter future and must eradicate a malnutrition problem. Also stop physical and mental problems from malnutrition.[12]

Methods: It was a cross sectional study with an aim to assess nutritional status of children up to 6 years of age and determine its association with maternal autonomy at selected rural areas of Bagalkot.

Study participants: The study participants were children from 6 months to 6 years of age residing in rural areas of Hunagund Taluk of Bagalkot District. The data was collected from 360 children and their mothers. As per data obtained from CDPO office Bagalkot, there are 2,71,908 children within 6 months to 6 years of age in Bagalkot district, out of which 1,93,893 (71%) children reside in rural areas.[13]

Setting of the data: The study was conducted in 4 villages of Bagalkot district**.** The Bagalkot district has 9 talukas. Researcher selected Hunagund taluka out of 9 talukas. Hunagund taluka has 86 villages[14] with 9,907 children within 0-6 years of age group.[15] Four villages were selected, namely, Sulebhavi, Chittargi, Gangur, Hulaginal of Hunagund Taluk were seleced by lottery method. The researcher enrolled 90 subjects from each village respectively.

Sampling technique: The sample was selected by multi stage random sampling technique. In first/primary stage the researcher selected Hunugund taluka from Bagalkot district. In second stage, out of 86 villages, four villages were selected by lottery method. The data of number of children in each selected village was obtained from Hunugund rural, CDPO office and Anganwadis of respective village. In third stage all the children available in each village within 6 months to 6 years of age, who satisfy the sampling criteria were enrolled in the study. 98 children from Sulebhavi, 97 from Chittargi, 87 from Gangur and 78 from Hulagina. The sample selection criteria included the children below 6 years and their mothers, who were available and willing to participate, by giving consent for participation of their children. The children or their mothers, feeling sick and not able to provide data were excluded from the study.

Sample size estimation:

The sample size was calculated considering the following criteria

As per NFHS-5 data, the prevalence of malnutrition among rural children in India is 36%.[16] Hence the proportion of malnutrition is considered as 0.36

$\alpha = 0.05$, population proportion (P) =0.36, Z = 1.96, d (margin of error) = 5%

The following formula was used to calculate the sample size

$$S = \frac{Z^2 P(1-P)}{d^2}$$

$$S = \frac{(1.96)^2(0.36)(1-0.36)}{(0.05)^2} \qquad S = \frac{0.884}{0.0025}$$

S = 354

Hence the calculated sample size was 354, as round off the researcher selected 360 children and their mothers.

Data collection instruments:

Structured questionnaire prepared by the researcher was used to collect base line data of children and maternal autonomy, Digital Weighing machine/ Beam scale/hanging scale -were used to check body weight, Infantometer/measuring tape- were used to check height of children and Shakir's tape was used for measuring mid arm circumference. WHO Anthro Plus software was used to determine SD, Z scores, for nutritional status of the children.

Translation and reliability of data collection instruments

The instruments were translated in to Kannada language and retranslated in to English. Similarity between original and translated tool were ascertained by linguistic experts. The reliability of all 4 tools was established by test retest method. The tools were administered to 40 mothers and their children and the same tools were administered to same group with a gap of seven days. Spearman's rank order correlation co-efficient for baseline proforma was R=1. For maternal autonomy r=0.95 and for dietary habits r=0.85 suggesting all the tools were reliable for conducting the study. The Anthropometric data was checked twice with an interval of 5 minutes. The weighing machine, Infantometer,

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Shakir's tape and measuring board were all found reliable with r=1.

Data collection procedure: The data was collected from 1-07- 2023 to 30-07-2023. Prior permissions were taken from the CDPO, Hunagund Taluk. The children and their mothers were Screened according to inclusion and exclusion criteria. Consent was obtained from the participants. Instructions were given regarding content of data collection instruments. The researcher attained and clarified the doubts of participants during data collection. The filled tools were collected from the participants. On an average around 15 minutes were spent on data collection from each mother and child.

Ethical Clearance: Ethical clearance certificate was obtained from institutional ethical clearance committee, B.V.V.S Sajjalashree Institute of Nursing sciences, Bagalkot (Ref.No:BVVS/SIONS/IEC/2022-2023/248, Date:13/08/2022)written consent of participation was obtained from participants before data collection.

Statistical analysis: The data was analysed using SPSS version 28. The obtained data was entered in MS excel sheet. The data was edited for accuracy and completeness. The categorical responses were coded with numerical codes. The data was presented with frequency and percentage distribution tables and diagrams. The description of base line characteristics, maternal autonomy was presented with Arithmetic mean, median and standard deviation. Multi logistic regression analysis and Odds ratio were used to associate the child nutritional status with maternal autonomy.

Results:

The mean age of the children was 39.4±18.03 months, mean age of mothers was 27.9±4.76 years, 56.1% children were Males and 43.9% were Females. 47.2% of children were from upper middleclass family, 53.9% of the respondents were from joint family, 62.8% mothers were house maker, 27.2% mothers have had pursued PU or Diploma education.

Table1: Distribution of children according to their weight for age and maternal autonomy of their mother.

N=360

Maternal autonomy	Weight for Age				Total		Chi square value	P Value
	Normal		Moderate underweight					
	F	%	F	%	F	%		
Low	36	10.0	34	9.4	50	13.89		
Moderate	112	31.1	32	8.9	144	40.00	41.5	0.00001*
High	132	36.7	14	3.9	166	46.11		
Total	280	77.8	80	22.2	360	100		

* Significant α = 0.01, F=frequency, %= percentage

Table 1 depicts that 77.8 % of children had normal weight and 22.2% were moderately underweight. 34 (9.4%) children with low maternal autonomy were moderately underweight. A significant association was found between nutritional status in terms of weight for age of children and their mothers' maternal autonomy (P< 0.00001) at 1 % level of significance.

Table 2: Distribution of children according to their Height for age and maternal autonomy.

N= 360

Maternal Autonomy	Normal		Moderate Stunted		Severe stunted		Total		Chi square value	P Value
	F	%	F	%	F	%	F	%		

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Low	18	5.0	12	3.3	20	5.6	50	13.9		
Medium	96	26.7	28	7.8	20	5.6	144	40.0	27.53	0.00001*
High	126	35.0	40	11.1	0	0.0	166	46.1		
Total	240	66.7	80	22.2	40	11.1	360	100		

* Significant α = 0.01, F=frequency, %= percentage

66.7 % children (Table 2) had normal height as per their age. 22.2% were moderately stunted and 11.1% were severely stunted. 5.6% of the children with low maternal autonomy and 5.6% with medium maternal autonomy were severely stunted. A significant association was found between nutritional status in terms of height for age of children and their mothers' maternal autonomy (P< 0.00001) at 1 % level of significance.

Discussion:

It is a cross-sectional study to assess nutritional status and its association with maternal autonomy and dietary practices among children between 6 months to 6 years of age. A similar study was conducted by Angele Eveline Tchapda on assessment of Nutritional Status and associated factors in children aged, 6 to 59 Months in Ayos Locality of Cameroon,[17] A similar study was conducted by S.K.Senthilkumar to assess the prevalence and determinants of malnutrition among 206 children aged 0-5 years.[18] In the present study a sample of 360 children between 6 months to 6 years age were selected by multi stage random sampling technique. and in a similar study 580 children, between 6 months to 6 years of age and their mothers were selected by S R Das at Tumkur Medical college, for assessment of nutritional status of children .[19]

In a present study structured questionnaire was used to collect baseline data Omar A at Banadir Hospital, Mogadishu, Somalia, used questionnaire to collect the data.[20] In a present study multiple logistic regression analysis study was used on maternal autonomy, Chilinda, Z, B at Malawi.[21] and by Mya KS, Kyaw AT, Tun T at Myanmar conducted studies among children below 6 years using multiple regression analysis. Acosta P conducted a cross sectional study in rural areas of Cartagena, Colombia.[23] and TAD AC at *Semai Orang, Malaysia.*[24] conducted a cross sectional study in which, 22.2% children were moderately stunted and 11.1% were severely stunted. Results of the study conducted by Udaya shankar C at Pondicherry, show that, underweight, stunting and wasting in the study population was 18.3%, 31.6% and 20.1% respectively.[25] stunting, underweight and wasting was found among 42% , 33 % and 15% children respectively in a study conducted by Abdulahi A, Shab-Bidar S, Rezaei S, Djafarian K.[26] In a present study for data analysis SPSS version 28 was used for analysis of data, in a similar study data was analysed using SPSS software 16 version and Open Epi Software Version 2.3.[27] Present study was conducted to assess association between child nutritional status and their maternal autonomy, similar study was conducted in Nigeria by Ariyo T, Jiang Q, among children under 24 months to assess feeding practices and determine association between maternal autonomy and childhood undernutrition.[28] In present study maternal decision making, finance and freedom of movement were used, similar study was conducted by Paul P, Saha R in India.[29] In a present study WHO Anthro plus software was used to obtain z scores of height for age and weight for age of children, in similar study tool was used by Gibson R.S.[30]

Conclusion and Recommendation:

The study involved sample of 360 (6 months to 6 year) children and their mothers, residing in rural area, selected by multi stage random sampling technique and collection of data by structured questionnaire for assessing baseline characteristics and maternal autonomy. Anthropometric data was collected by using weighing machine, measuring tape, infantometer and shakir's tape, a significant association between maternal autonomy and nutritional status of children. A significant association was found between nutritional status of children and sociodemographic factors. A similar study can be repeated in different regions of the states or nations so as to compare the results.

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