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Nutritional Status and Eating Behaviour of School Aged Children Residing Rural Area of Bagalkot, A Cross-Sectional Study

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Abstract **Original Research Article**

***Background of the study*:** Proper nutrition is crucial to consider when care for kids, as it protects against malnourishment, maintains a healthy immune system, prevents obesity and reduces the risk of chronic disease. Parents and caregivers influence children's eating through the type of foods they provide, how meals are structured, their parenting style, role modeling and the family and social environment. School-going age is very significant because this is the main period of life to make the body store nutrients. These stores help in the rapid growth of children. ***Aim*:** Aim of the study is assessing nutritional status and eating behaviour of school aged children. ***Methods*:** A cross sectional quantitative non-experimental approach was used to achieve overall and comprehensive purpose. A sample of 270 children from 6 to 12 years of school aged children and their either parents was selected by disproportionate stratified random sampling technique and data was collected by structured questionnaire for baseline characteristics of samples, nutritional status and eating behaviour. SPSS version 28 was used for statistical analysis. CHI squire test to associate nutritional status with eating behavior and socio demographic factors. ***Results*:** There is significant association between nutritional status and socio demographic variable. Age (date of birth) ($\chi 2$= 18.99 P value 0.0001) there is significant association between AGE and nutritional status. There is a significant association between eating behavior and socio demographic variables. Age (P value 0.0001) there is a significant association between eating behavior and AGE, Religion (P value 0.02) there is a significant association between eating behavior and religion. ***Conclusion*:** Parental control reward, social facilitation, sensory education availability and accessibility of food and controlling strategies for changing children's eating behavior in a positive direction appear to be counterproductive hands-on approaches such as gardening and cooking programs may encourage to their mothers and grater vegetables consumptions and mat have larger effect compared to nutrition education. Providing children with free accessible fruits and vegetables have been experimentally shown to positively affect long-term eating behavior.

Keywords: Eating behavior, Nutritional status, Weight for Age and Height for Age.

INTRODUCTION

When our body receives all the nutrients in appropriate amounts so as to meet the needs of the body, then we are in the state of good nutrition. We have a normal nutritional status. However, when the nutrients provided in the diet are inadequate or not utilized properly, it results in a state of imbalance in the body [1].

School age child development is a range from 6 to 12 years of age. During this time period observable differences in height, weight, and build of children may be prominent. The language skills of children continue to grow and many behavior changes occur as they try to find their place among their peers [2]. the population of school aged children ages five to nine globally is expected to reach about 632.44 million [3]. The Indian Education System is one of the largest in the world with more than 1.5 million schools, 8.5 million teachers and 250 million children [4]. In Karnataka the overall enrolment, from pre-primary classes to Class 12 in both government and private schools, was 1.2 crore up from 1.1 crore in 2020-21 [5].

Eating behavior is a complex interplay of physiologic, psychological, social and genetic factors that influence meal timing, quantity of food intake, food preference, and food selection [6]. Eating behaviors have an integral role in human growth and development as well as the prevention of life-long chronic diseases, including obesity. More than a dozen eating behaviors have been described in children and have been suggested to broadly describe appetite self-regulation tendencies towards food approach (e.g., food responsiveness) and avoidance (e.g., food neophobia).

Eating behaviors thought to represent food approach include enjoyment of food (general interest in food), food responsiveness (responsiveness to external food cues), eating in the absence of hunger (consumption of palatable foods when satiated), and relative reinforcing value of food (how hard an individual is willing to work to gain access to food). Child body mass index (BMI) has been positively associated with multiple food approach behaviors across studies involving preschool-aged children, including parental reports of enjoyment of food, food responsiveness, and desire to drink as well as observed eating in the absence of hunger and food reinforcement (an individual's willingness to work to gain access to food when an alternative reinforce is available) in laboratory protocols [7].

School-age children (ages 6 to 12) need healthy foods and nutritious snacks. They have a steady but slow rate of growth and usually eat 4 to 5 times a day (with snacks). Many food habits, likes, and dislikes are set during this time [8]. The basic goal of nutrition in childhood is to achieve optimal growth and development. Proper nutrition ensures adequate immunity and response to stress. Individual nutritional needs vary according to genetic and metabolic predispositions. Nutritional needs are defined as by genetic study include age, gender, habits nutritional type, efficiency and activity of metabolism. Environmental factors include lifestyle [9]. The diets of the school age children were found low in functional foods like green leafy vegetables, fruits, milk and protein foods. Their diet was found mostly dependent cereals and pulses. They were found dependent on the Mid-Day Meal for school lunch and the habit of skipping meals was found common among the studied population of 7-9 years of age. Their socioeconomic status was found related with their diet quality [10].

The problem of overweight and obesity in children has become increasingly serious, affecting their current and even life-long health. Obesity increases the risk of physical and psychological problems, including type 2 diabetes, cardiovascular and liver disease as well as social discrimination, low self-esteem, and depression. Meanwhile, malnutrition cannot be neglected. Malnutrition can not only stunt children but also increase susceptibility to infectious diseases. A systematic review of obesity and dietary factors in children aged 6–12 years that obesity is related to missing breakfast, excessive intake of sugary beverages, and low consumption of fruits, vegetables and milk [11].

Proper nutrition is crucial to consider when care for kids, as it protects against malnourishment, maintains a healthy immune system, prevents obesity and reduces the risk of chronic disease. Some important nutrients for children include: Calcium strengthens bones. Found in milk, yoghurt and seeds [12].

MATERIALS AND METHODS

A descriptive survey design was used to assess the knowledge and utilization of RMNCH+A programme services among women residing at rural areas of Bagalakot district, Karnataka The data was collected using a structured open ended knowledge questionnaire to assess the knowledge and utilization by using checklist and a descriptive and inferential statistics were used to arrange and evaluate the results.

Study design Cross sectional research design.

Setting of the study: The research was carried out among the school aged children in the age group of 6-12 years residing in, shirur, neeralkeri, neelanagar, muchkhandi, rural areas of Bagalkot district Karnataka.

Participants: In the present study participants were the school aged children between 6-12 year age group and their parents. The sample consisted of 270 school aged children. Disproportionate stratified random sampling technique was used.

Instruments: The study was conducted using a structured questionnaire on child eating behaviour. Questionnaire and information gathered through standard questions on child eating behaviour. Weighing machine and measuring tape to measure height and weight. Structured Questionnaire, to collect data regarding socio demographic factors.

Description of data collection instruments

Part-I: Socio-demographic profile: Structured questionnaire to collect data regarding socio-demographic characteristics consists of 11 items such as age of the child, birth order of child, mother's age, education occupation, of mother and father, monthly income of Family, birth order of child, total number of children in the family.

Part-II: Anthropometric measurements of children: It consists weight, height, BMI.

Part-III: Nutritional status: It consist of 3 parts Normal, underweight, overweight. Score was given based on BMI.

Data collection procedures: The main study was conducted between 01June 2024 to 31 June 2024 conducted among 6-12 years school aged children residing, shirur, neeralkeri, neelanagar, muchkhandi rural areas of Bagalkot district, Karnataka, India. Data was collected from the children and their parents by interview schedule. Before enrolment of subjects and data collection, formal authorization was obtained from the Principal of the nursing institution and the aim of the study was explained to the participants. They were asked questions in Kannada and other languages understandable to them.

Variable under study: Study variable- the study variable for the present study were, Nutritional status and eating behaviour of school aged children.

Sociodemographic Variables: Age, Gender, religion, educational status of mother, Education status of father, Occupation of mother, Occupation of father, Family monthly income, number of children present in the family, Birth order of child.

Statistical Analysis

The obtained data were statistically examined in terms of the objectives of the study using inductive statistics. A master sheet was prepared with responses given by the study participants. Frequencies and Percentage was used for the analysis of demographic data. The mean and standard deviation was used as inferential statistics. The Chi Square test was used to determine association between nutritional status, eating behaviour and selected Socio-demographic variables.

Ethical Approval: A certificate of ethical permission was obtained from the ethical committee of the institution and written consent was taken from each participant.

RESULTS

A. Socio-demographic variables

In this study, The majority (41%) of the children were born in 2013-2014. The majority of children (65.55%) are male children. The majority of mothers are (32.96%) completed high school. The majority of father are (28.14%) completed primary education and high school. The majority of (69.26%) children are Hindu. The majority of family have (47.79%) 2 children. The majority of mothers are (85.56%) house wife. The majority of fathers are (43.72%) coolie. The majority of family's were (40.38%) below 10000 monthly in come.

B. Assessment of nutritional status of children in terms of BMI.

Table 1: Frequency and percentage distribution of study subjects based on scores of BMI

Sl. No	Description	Score	Frequency	Percentage
1	Under weight	< 14	69	26%
2	**Normal**	**14-18**	**185**	**69%**
3	Over weight	19-22	16	5%
4	Obese	>22	0	0

Table 2 shows that percentage wise distribution of childrens in scores reveals that out of 270 school aged children, the highest frequency(185) found with normal body waight, 69% frequency are underweight, and 16% frequency are over weight and no any children are obese. The mean percentage 14.755 with SD±2.117 for nutritional status in terms of BMI.

SECTION III Assessment of eating behaviours of children. (Frequency and percentage distribution of study subjects based on eating behaviours).

Table 2:

Sl. No	Level of eating behaviour	Scores	Frequency	Percentage
1	Poor	0-46	31	11%
2	Moderate	47-93	239	**89%**
3	Appropriate	94-140	0	0%

Table 3 Shows that the children who are score 47-93 with frequency of 239 (89%) moderate level in eating behavior, the children who are score 0-46 (11%) poor level in eating behavior scale, the children who are score 94-140 with frequency of 0 (0%) are appropriate level in eating behavior scale. Mean and standard deviation for study subjects are mean 59.462 SD± 10.206.

Karl Pearson's correlation coefficient between nutritional status and eating behaviors.

Table 3

Variables	Eating behaviour
Nutritional status	Karl Pearson correlation co efficient r = 0.3785*.

*: there is a significant weak positive correlation between nutritional status and eating behaviour.

SECTION: V Association between nutritional status, eating behaviors of study subjects with their selected sociodemographic variables.

Table 4

Sl. No	Socio demographic variables	Df	Chi-square	P value	Interpretation
1	Age (date of birth)	1	18.99	<0.0001*	S
2	Gender	2	0.08	0.96	Ns
3	Education of mother	3	2.88	0.41	Ns
4	Education of father	4	6.37	0.173	Ns
5	Religion	2	0.45	0.502	Ns
6	Number of children in the family	3	3.66	0.3	Ns
7	Birth order of child	2	1.06	0.588	Ns
8	Occupation of mother	1	0.03	0.86	Ns
9	Occupation of father	3	5.29	0.151	Ns
10	Family monthly income	3	3.67	0.299	Ns

Table 4 shows that Chi square test was used to determine the association between nutritional status and socio demographic variables. Gender ($\chi 2$= 0.08, p value 0.96), Education of mother ($\chi 2$= 2.88, p value 0.41), Education of father ($\chi 2$= 6.37,P value 0.173), Religion($\chi 2$=0.45,P value 0.502), Number of children in the family ($\chi 2$=3.66, P value value0.3), Birth order of child ($\chi 2$=1.06, p value value 0.588),Occupation of mother($\chi 2$=0.03 P value 0.86), Occupation of father ($\chi 2$=5.29, P value0.151) , Family monthly income ($\chi 2$= 3.67 P value 0.299) ($\chi 2$= 18.99 P value 0.0001) there is significant association between AGE (date of birth) and nutritional status.

SECTION VI: Association between eating behavior of study subjects with their selected sociodemographic variables

Table 5

Sl. No	Socio demographic variables	Df	Chi-square	P value	Interpretation
1	Age (date of birth)	1	88.02	0.0001	S
2	Gender	1	0.016	0.89	Ns
3	Education of mother	1	0.05	0.8	Ns
4	Education of father	1	0.29	0.58	Ns
5	Religion	1	5.12	0.02	S
6	No. of children in the family	1	0.54	0.45	Ns
7	Birth order of child	1	0.0002	0.98	Ns
8	Occupation of mother	1	1.81	0.17	Ns
9	Occupation of father	1	0.96	0.32	Ns
10	Family monthly income	1	0.22	0.63	Ns

Table 5 Shows that Chi square test was used to determine the association eating behaviour between sociodemographic variables. Finding reveals that Gender ($\chi 2$ =0.016 ,p value o.89), education of mother ($\chi 2$=0.05 P value 0.8), Education of father ($\chi 2$=0.29 P value 0.58), number of children in the family($\chi 2$= 0.54 p value 0.45), Birth order of child($\chi 2$=0.0002 p value 0.98), Occupation of mother ($\chi 2$= 1.81, p value 0.17), Occupation of father ($\chi 2$= 0.96, p value 0.32), family monthly income ($\chi 2$=0.22 P value 0.63) are not significant association between nutritional status and eating behaviour.

Age (date of birth) (P value 0.0001) there is a significant association between eating behavior and AGE (date of birth), Religion (P value 0.02) there is a significant association between eating behavior and religion.

DISCUSSION

The finding of this study discusses the major findings and reviews them in relation to findings from the results of other studies.

The present study was conducted to find out the level of knowledge and utilization of RMNCH+A programme services among women residing at Kelavadi, Hangaragi, Layadagundi, Nagaral S P & Kotnalli rural areas of Badami taluk, Bagalkot district, Karnataka. In order to achieve the objectives of the study, descriptive survey research design was adopted. A sample of 100 women was selected using a non-Probability convenient sampling technique.

Percentage wise distribution of women according to their age in years reveals that, out of 100 women, majority of 46% were in the age group of 18-24 years,32% were in the 25-31 years,14% were in the 32-39 years and 8% were in the 39-45 years. It reveals that the majority 46% of the women belong to the age group of 18-24 years.

The findings of the study were similar to the study conducted by Sharma M. C. in 2021, to assess the knowledge and utilization of MCH services among mothers in Dhava village, Jodhpur, Rajasthan. The majority of 56 (70%) participants were in the age group of less than 30 years [11].

Percentage wise distribution of women according totheir educational status of women reveals that, out of 100 women, majority of 65% have pursued High school & Higher secondary education, 18% have pursued Degree & above education, 15% have pursued Primary school education, and 2% have not pursued any education / Illiterate. It reveals that the majority 65% of the women had completed their high school & higher secondary education.

The findings of the study were similar to the study conducted by Chiamaka J. Okafor in 2020, Knowledge, accessibility, and utilization of insecticide treated nets among pregnant women in a selected hospital in South-Eastern Nigeria. The majority of women had completed higher secondary education [12].

Percentage wise distribution of women according to their religion reveals that, out of 100 women, majority percentage (78%) were belonging to Hindu, 15% were belonging to Muslim, 5% were belonging to Christian and 2% were belonging to others religion. It reveals the majority 78% of the women belong to Hindu religion.

The findings of the study were contradictory with the study conducted by Nasira Mustafa in 2020, to assess the Knowledge Attitude and Practice Regarding Maternal Health Care Services at Ali Raza Abad, Lahore. Majority 100% participants were Muslims [13].

Percentage wise distribution of women according to their dietary pattern reveals that, out of 100 women, the majority 64% followed mixed dietary patterns, and 36% followed vegetarian dietary patterns. It reveals the majority 64% of the women had mixed dietary patterns.

The findings of the study were similar with the study was conducted by Bashir S, Ansari AH, Sultana A. in 2023 to assess the Knowledge, Attitude, and Practice on Antenatal Care Among Pregnant Women and its Association with Sociodemographic Factors: A Hospital-Based Study at Bengaluru, Karnataka. Majority 97.75% followed a mixed dietary pattern [14].

The percentage wise distribution of women knowledge scores reveals that out of 100 women, the highest percentage were (73%) found with adequate knowledge, (27%) were with moderate knowledge, and no one had inadequate knowledge regarding RMNCH+A programme services.

The results of the present study are inconsistent and not supported to the study was conducted by BashirS, Ansari AH, Sultana A. in 2023 to assess the Knowledge, Attitude, and Practice on Antenatal Care Among Pregnant Women and its Association with Sociodemographic Factors: A Hospital-Based Study at Bengaluru, Karnataka. Majority of 96%had average knowledge [14].

Percentage wise distribution of women utilization of RMNCH+A programme services scores reveal that out of 100 women highest percentage 54% were not utilized properly, and 46% were utilized properly RMNCH+A programme services.

The results of the present study are inconsistent and not supported by the study conducted by Nirmala Ghimire in 2020 to assess the Maternal health services utilization among mothers at Mahankal Rural Municipality, Lalitpur, Nepal. Good utilization of maternal health service 98(55%) [15].

Correlation between knowledge and utilization, there is a positive correlation (r=0.80) between knowledge and utilization of RMNCH+A programme services among women.

The results of the present study are inconsistent and not supported by the study conducted by Kavita Chandrakar in 2020 to assess the Knowledge & Utilization of Community Health Care Services related to Maternal & Child Health by Mothers Uttai village in Durg District, Chhattisgarh.Correlations between the knowledge and utilization of MCH service were not statistically significant (r= 0.422) [16].

There is a significant association between knowledge regarding RMNCH+A programme services and selected socio demographic variables of women is accepted for sociodemographic variables are age, educational status of women, husband educational status, occupation of women, family monthly income, duration of marriage in years, type of family and number of children. There is a no significant association between knowledge regarding RMNCH+A programme services for socio demographic variables such as husband occupational status, religion, diet, ration card of the family, and source of information regarding RMNCH+A programme services. The findings of the study were similar to the study conducted by Ramandeep Kaur in 2020 to assess the knowledge regarding maternal and child health services available among antenatal women. Findings related to association between selected socio demographic variables and knowledge score. It was found that knowledge score was significantly associated with father's education (0.008 & df=5) at $p<0.05$, level and per capita income (0.003 & df=04) at $p<0.05$ level. No association was found between knowledge score and other demographic variables like age, educational status (self), religion, residential area, occupation (self), occupation (father), monthly family income [17].

There is no significant association between utilization of RMNCH+A programme services and selected socio demographic variables of women.

The findings of the study were similar to a study conducted by Abhishek Singh in 2021 to A to assess the utilization pattern of maternal health services and associated factors in the aspirational district of Haryana, India. There is no significant association between utilization of MCH services with socio demographic variables like, occupation $\chi 2=1.26$, df=1, P=0.262, husband occupation $\chi 2=2.59$, df=1, P=0.107, type of family $\chi 2=1.41$, df=1, P=0.235 [18].

CONCLUSION

The study is helpful to assess knowledge and utilization of RMNCH+A programme services among women in the age group of 18-45 years residing at Badami taluk of Kelavadi, Hangaragi, Layadagundi, Nagaral S P & Kotnalli rural areas of Bagalkot district, Karnataka. The overall study findings revealed that the Correlation between knowledge and utilization, there is a positive correlation (r=0.80) between knowledge and utilization of RMNCH+A programme services among women.

REFERENCES

1. National Health Mission. NHM Components-RMNCH+A, Available from:https://nhm.gov.in/index1.php?lang=1&level=1&sublinkid=794&lid=168.
2. Parsekar, S. S., Pundir, P., & Bevilacqua, V. (2020). Reproductive, maternal, newborn, child and adolescent health and related behaviour change communication strategies in Bangladesh, Nepal and India: a narrative review. *Clinical Epidemiology and Global Health*, *8*(1), 280-286. doi: 10.1016/j.cegh.2019.08.014.
3. Managing programmes on reproductive, maternal, newborn, child and adolescent health, Module 1: Introduction, page no 1, 26-27. World Health Organization 2021.Available From: https://apps.who.int/iris/bitstream/handle/10665/340775/9789290228349-Module1-eng.pdf.
4. Bustreo, F., Banerjee, A., Ross, D. A., Mustafa, T. S., Kurian, O. C., & Mohan, A. (2023). Maternal, Newborn, Child and Adolescent Health and Well-Being: A Critical Agenda for the G20. Available from: https://t20ind.org/research/maternal-newborn-child-and-adolescent-health-and-well-being/.
5. Kunjumen, T., Okech, M., Deki, Asamani, J. A., Mohamed, N., & Nuruzzaman, M. (2022). Multi-country case studies on planning RMNCH services using WISN methodology: Bangladesh, Ghana, Kenya, Sultanate of Oman and Papua New Guinea. *Human Resources for Health*, *19*(Suppl 1), 155. doi: 10.1186/s12960-021-00671-3. PMID: 35090493; PMCID: PMC8796320.
6. Kumar, R. S. (2017). Knowledge on utilization of maternal and child health services among rural married women. *International Journal of Research and Review*, *4*(5), 110-113. Retrieved from https://www.ijrrjournal.com/IJRR.
7. Managing programmes on reproductive, maternal, newborn, child and adolescent health, Module 1: Introduction, page no 1, 26-27. World Health Organization 2021.Availablefrom: https://apps.who.int/iris/bitstream/handle/10665/340775/9789290228349-Module1-eng.pdf.
8. World Health Organization and United Nations Children's Fund. WHO/UNICEF joint database on SDG 3.1.2 Skilled Attendance at Birth. Available at: https://unstats.un.org/sdgs/indicators/database/.
9. Amwonya, D., Kigosa, N., & Kizza, J. (2022). Female education and maternal health care utilization: evidence from Uganda. *Reproductive Health*, *19*(1), 142. doi: 10.1186/s12978-022-01432-8. PMID: 35725605; PMCID: PMC9208099.
10. National Health Mission. Available from: https://nhm.gov.in/image/RMNCH+A _Strategy.
11. Bagg, J., Kuppuswamy, M., & Kurien. (2022). Knowledge and utilization of mch services among mothers. *International Journal of Current Research*. doi:10.24941/ijcr.42136.09.2021.
12. Okafor, C. J., & Ogbonnaya, N. P. (2020). Knowledge, accessibility, and utilization of insecticide treated nets among pregnant women in a selected hospital in South-Eastern Nigeria. *European journal of midwifery*, *4*, 48. doi: 10.18332/ejm/130591. PMID: 33537649; PMCID: PMC7839151.

13. Mustafa, N. (2020). Knowledge Attitude and Practice Regarding Maternal Health Care Services. *Health Care: Current Reviews*. 08. 10.35248/2375-4273.20.8.248.
14. Bashir, S., Ansari, A. H., & Sultana, A. (2023). Knowledge, Attitude, and Practice on Antenatal Care among Pregnant Women and its Association With Sociodemographic Factors: A Hospital-Based Study. *Journal of Patient Experience*, 10. doi:10.1177/23743735231183578.
15. Ghimire, N., Khatry, R., & Shakya, V. (2021). Maternal health services utilization among mothers in a rural municipality. *J Patan Academy Health Sci*, *8*(1), 121-131.
16. Chandrakar, K. (2020). Descriptive study to assess the knowledge & utilization of Community Health Care Services related to Maternal & Child Health by Mothers. *Int J Curr Res Trends Technol*, *8*(4), 242-247.
17. Kaur, R., Verma, G. P., & Pandher, D. (2022). A prospective study to assess the knowledge regarding maternal and child health services available among antenatal women. *Int J Adv Res*, 8, 798-802.
18. Singh, A., Palaniyandi, S., Palaniyandi, A., Gupta, V., Panika, R. K., Mahore, R. K., & Goel, P. K. (2021). A cross-sectional study to assess the utilization pattern of maternal health services and associated factors in aspirational district of Haryana, India. *Journal of Family Medicine and Primary Care*, *10*(8), 2879-2885. doi: 10.4103/jfmpc.jfmpc_1762_20.