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CORRELATION BETWEEN NUTRITIONAL STATUS AND LEVEL OF MEMORY AMONG SCHOOL CHILDREN.

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ABSTRACT:

OBJECTIVE- To find out the relation of nutritional status and level of memory among school children.

METHODS- An quantitative co relational study was conducted among the school children. Non-probability purposive sampling was used to select 135 samples at Bahadalpur U.P. school, Bhubaneswar. After obtaining permission from the ethical board and school headmaster data were collected. Tool taken for collection of data were demographic Performa, Nutritional assessment using BMI & IAP Standard and Memory assessment using modified working memory test batteries scale.

RESULTS- It was observed that there is a positive correlation between nutritional status and level of memory among school-going children as the 'r' value was 0.15 which revealed as the nutritional status increases the level of memory will increase and from Chi-square analysis, nutritional status showed significant association with gender and level of memory showed significant association with gender and number of meals per day.

CONCLUSION- The study concluded that nutritional status plays an important role for memory enhancement during childhood period.

INTRODUCTION:

Nutrition is a prime factor for the development and maintenance of good health. The health and nutritional status of the children reflect the future of any countryas they are the most high-risk group of our population and the foundation of the nation.The childhood nutritional problems is a major issue in developing and developed countries.[1]Inadequate nutrition during childhood can cause growth retardation, malnutrition, reduced physical capacity along with mental and social development. [2]The important sign of nutritional status is height, mid-arm circumference, weight, and skinfold thickness. Based upon that

body mass index (BMI) is one of the most suitable ones to evaluate nutritional status. WHO has recommended various indicator based on anthropometric measurement such as height, weight isa valuable indicator to find out the nutritional status of children. Body mass index (BMI) is the most relevant variable for nutritional status.[3]

Behaviour and cognition of the individual can be affected by the nutrition may be in terms of deficiency of some nutrients or excess of certain nutrients. One study suggests that most of the children were insufficient of vegetable and fruit intake and they found poor in academic performance with comparison to the student who had taken sufficient amount of vegetable and fruits in their diet.[4]Worldwide it is an epidemic situation with childhood obesity as 1/3 rd of the children between 2 years to 19 years are diagnosed with obese or overweight.[5]

According to world bank estimation, India is the leading country for childhood malnutrition. As people of India lived with the different economical status it may cause two types of malnutrition: overnutrition and malnutrition.[6]

Malnutrition is one factor which stands as an obstacle with India's spectacular growth because in this country 46% of children under five years old are still underweight. It is considered as public health issuesand pointed as a silent emergency, silent killer, affecting those who cannot communicate their problem and have no independent option for their advocacy. The nutritional status of growing children is a sensitive point of community health and nutrition. [7]The nutritional status of the children also plays an important role in the learning and performance of the children at school.[8]

As most of the children in a rural area were not getting the required amount of nutrient which were essential for their proper growth and development of physical as well as intellectual abilities. The rural children were deprived of proper nutrient due to poverty and lack of knowledge of parent regarding good health and nutritional status. Hencewe are conducting a study regarding the relationship between nutritional status and level of memory among school-going children in a rural area.

MATERIALS AND METHODS:

A co-relational research design with quantitative research approach was used to conduct the current study to find outthe relation of nutritional status and level of memory among school-going children. The study was conducted at Bahadalpur U.P. school, Bhubaneswar. . After obtaining permission from the ethical board and school headmaster data were collected. The purpose of the study was explained to the headmaster and study samples. A total of 135 samples were selected with purposive sampling technique. Tool taken for collection of data were demographic Performa, Nutritional assessment using BMI & IAP Standard and Memory assessment using modified working memory test batteries scale. The BMI divided into four categories like underweight, normal weight, overweight and obese. The modified working memory test batteries scale has six parameters like Memory For Sentence, Memory For Study, Reading Span, Visual Working Memory, Backward& Block Recall, Stroop Task and the score was categorized as poor memory level (0-20), average memory level (21-40), good memory level (41-60). Reliability of the tool was done through chronbach alpha i.e 0.70 and the tool was found reliable.

STATISTICAL ANALYSIS:

A descriptive statistical analysis was done taking demographic variables in frequency and percentage. Co-relation 'r' test was done to find out the relationship between. A chi-square test was done to identify the nutritional status and level of memory association of with socio-demographic variables.

RESULT AND DISCUSSION:

A total of 135 students participated in the study. Majority 36.2% of the sample were in 8-9 years old and 60% samples were male. Maximum 40.74% of the study sample's parent education wascompleted primary school and 37.77% parents occupation was business. Majority of the sample 74.81% were from the nuclear family, 62.96% having two number of a sibling. Maximum 90.37% samples were taking non-vegetarian food, 59.25% were taking 4 nos of meals per day. (table -1)

From the co-relational statistical analysis between nutritional status and level of memory, it was found a positive co-relationship as the 'r' value was 0.15 which revealed as the nutritional status increases the level of memory willincrease. (Table-2).The further result indicated from Chi-square analysis, nutritional status showed significant association with gender and level of memory showed significant association with gender and number of meals per day. (Table -3 & 4)

A study was conducted by KM Vinod, S.Rajagopalan, July 2008, on the nutritional status of school-going children and its outcome on cognition with a purpose to find out the effect of a multiple micronutrient food supplements (MMFS) on the nutritional status and its impact on the level of cognition. Analysis of nutritional status and effect on cognition revealed that there was a significant ($P<0.05$) development in the research group, whereas in the non-experimental group there was a statistically significant decrease ($P<0.05$) of the level of cognition. Hence the research showed that the MMFS was effective for the development of nutrition status and level of cognition in children.[9]

Another study was done by Dipika P. Shah and etal to find out the relation between academic performance and obesity in school-children from Anand district. Randomly 1034 samples were taken and allotted into two groupsi.e. one group (5-11 years) andanother (12-18 year). BMI, Waist-Height ratio (WHtR), Waist Circumference (WC), and SSFT (Sum of Skinfold thickness) were taken to measure obesity of samples by using these scales. School performance was assessed by the class teacher. Spearman correlation between obesity (WC) and academic performance correlation result shown that there was a significant negative moderate correlation in urban boys ($r = -0.4$, p0.05) and girls ($r = -0.3$, $p< 0.05$) of 5-11yrs age group. There was no significant (r ranging from -0.02 to -0.7, $p>0.05$) correlation between obesity and academic performance in boys and girls of 12-18 years' age-group. Sothis study concluded that there was a negative correlation in obesity and academic performance of school children in boys and girls (5 -11 years) but it was not found in 12-18 years of age.

CONCLUSION:

Based on the result of the study it was concluded that there is a positive correlation between nutritional status and level of memory among school-going children. Hence nutritional status plays an important role for memory enhancement during childhood period.

TABLE- 1. Sample distribution according to demographic.

VARIABLES		FREQUENCY	PERCENTAGE(%)
Age(yr)	<8 year	26	19.25%
	8-9 year	49	36.29%
	10-11 year	44	32.59%
	>11 year	16	11.85%
GENDER	Male	81	60%
	Female	54	40%
EDUCATION OF PARENTS	Uneducated primary	28	20.74%
	Completed primary school	55	40.74%
	Completed Secondary school	44	32.59%
	Completed High school	6	4.44%
	Graduate	2	1.48%
OCCUPATION OF PARENTS	Govt.Job	3	2.22%
	Private Job	11	8.14%
	Business	51	37.77%
	Unemployed	26	19.25%
	Farmer	26	19.25%
	Others	18	13.33%
TYPE OF FAMILY	Joint	28	20.74%
	Nuclear	101	74.81%
	Extended	6	4.44%
NUMBER OF SIBLING PRESENT	Single	14	10.37%
	Two	85	62.96%
	More than Two	36	26.66%
	No Sibling	0	0
TYPE OF FOOD	Vegetarian	13	9.62%
	Non vegetarian	122	90.37%

NOS. OF MEALS PER DAY	<3	1	0.74%
	3	48	35.55%
	4	80	59.25%
	>4	6	4.44%

TABLE -2. Co-relation between nutritional status and level of memory

Sl NO	VARIABLES	CO-RELATION	INFERENCE
1.	NUTRITIONAL STATUS	0.15	POSITIVELY CORRELATE
2.	LEVEL OF MEMORY		

TABLE -3 Association of nutritional status with selected demographic variable

SL NO	Demographic variable	Chi-square value tabulated P= 0.05	Chi-square value calculated	Inference
1	AGE	0.125	6.03	NS
2	SEX	<0.00001	44.22	S
3	EDUCATION OF PARENTS	0.59	8.35	NS
4	OCCUPATION OF PARENTS	0.89	5	NS
5	TYPE OF FAMILAY	0.55	3.027	NS
6	NUMBER OF SIBLING PRESENT	0.88	2.32	NS
7	TYPE OF FOOD	0.18	3.41	NS
8	NOS. OF MEALS PER DAY	0.149	9.451	NS

TABLE- 4 Association Of Level Of Memory With Selected Demographic Variable

SL NO	Demographic variable	Chi-square value tabulated P= 0.05	Chi-square value calculated	Inference
1	AGE	0.90	2.17	NS
2	SEX	<0.00001	26.36	S
3	EDUCATION OF PARENTS	0.66	7.64	NS
4	OCCUPATION OF PARENTS	0.050	18.26	NS
5	TYPE OF FAMILAY	0.19	6	NS
6	NUMBER OF SIBLING PRESENT	0.8	3.01	NS
7	TYPE OF FOOD	0.41	1.46	NS
8	NOS. OF MEALS PER DAY	<0.00001	78.54	S

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Ethical statement-This study was approved by the institutional ethical committee and prior consent of the patient was taken before the data collection.

Conflict of interest- The authors declare that there is no conflict of interest.

REFERENCE:

1. Chambers R. Back matter-challenging the professions. Challenging the professions: frontiers for rural development. Rugby: Practical Action Publishing; 1993. p. 122–43.
2. Sohi Darshan, Elements of nutrition, 2014 edition, An impediment of S. VIKAS & COMPANY (Medical publishers) INDIA,2014,Pp- 4
3. World Health Organization (WHO). Population-based approaches to childhood obesity prevention. 2012.
4. Lahey M, Rosen S. Dietary factors affection learning behaviour,2010. Retrieved from URL: http//childrensdisabilities.info.
5. Center for Disease Control and Prevention. (2013). Childhood obesity facts. Adolescent and School Health. Retrieved from http://www.cdc.gov/healthyyouth/obesity/facts.htm
6. Ogden CL, Carroll MD, Flegal KM. High body mass index for age among US children and adolescents, 2003-2006. JAMA. 2008 May 28;299(20):2401-5.

7. Rao VG, Yadav R, Dolla CK, Kumar S, Bhondeley MK, Ukey M. Undernutrition & childhood morbidities among tribal preschool children. Indian J Med Res. 2005 Jul;122(1):43-7
8. Endalew B, Muche M, Tadesse S. Assessment of the food security situation in Ethiopia: a review. Asian J Agric Res 2015;9(2):55–68.
9. Vinod KM, Rajagopalan S.Trial using multiple micronutrient food supplements and its effect on cognition. Indian J Pediatr2008 75: 671-8.
10. Shah DP,Maiya AG. Correlation between academic performance and obesity in school-children from Anand district. International Journal of Physiotherapy, 2017; 4(4), 222-228