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# A study on impact of nutritional education on food habits and academic performance with emotional maturity in adolescents of two different states in south India

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**Abstract:**

Adolescents today are healthier, better educated and more aware. Despite these achievements adolescents continue to be at a disadvantage and face barriers that restrict their access to resources, inhibit their ability to make choices about their lives and limit access to education, employment opportunities and access to reproductive health care services. The current study was conducted in schools of Vijayawada in Andhra Pradesh state and Chennai in Tamilnadu state of India from 2015-2017. The list of private corporate and Government secondary schools in the local government was collected from the two different cities of State Ministry of Education. From adolescents of age group of 13-15 years who were there at school during the period of study, nutritional status survey was considered as the study subjects. Convenient sampling technique was used to choose the sample size. A total of 1080 children between age group of 13-15 years were taken, out of which 553 were from Vijayawada and 527 from Chennai. Further, sub divided among boys' and girls' categorized as overweight, underweight and Normal. Samples were selected from schools as it was easy to take the follow-up with children for pre and post nutrition education. The persistence of the study was educated and approval was obtained from the Head of the Institution. Parents were also refined of the school nutritional status survey by the school authorities. A predesigned and pretested questionnaire was used to collect data concerning demographic characteristics and any current health complications or in the current, past by one to one interview method.

**Key Words:** Adolescents, secondary schools, pre and post nutrition education, Predesigned, Pretested, Questionnaire.

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**Introduction:**

Health is more important for all human beings. Sincere care is needed to give perfect health to children because they constitute the most precious resource for a country. The focus should be to improve the quality of life by giving the needed importance to the children to promote their health and protect them from diseases.

While the Ministry of Health and Family Welfare, Government of India (GOI) has adopted the WHO definition. Various agencies of the government use different definitions and age groups. The lack of consensus on the age and therefore the lack of characterization of the vulnerabilities of adolescents it difficult to form policies provide legal protection and create health, education and social welfare services for the adolescent population. Adolescents are net a homogeneous group their situations and needs vary by age, sex, socio-cultural context, including marital status, level of educational attainment, employment status, rural-urban residence, migration status, sexual activity, living arrangements, religion and household economic status (UNICEF, 2013).

A study with 223 adolescent girls' in an urban slum area of Andhra Pradesh reported an overall prevalence of stunting at 28.3% (Indian standard) underweight at 22.9% and thinness at 20.6%. The paper highlighted the fact that an urban slum adolescent girl is subjected to more physical and mental challenges compared to a rural adolescent girl (Prashant and Chandan 2009).

The child observes the changes and makes amendments in his/her eating habits without appropriate guidance. Awareness in relation to body and its look become the top precedence. It is significant for adolescents to understand that disappearance during growth squirt and compact nutrition can lead to deficiencies which may cause metabolic disorders in adulthood. Girls' skip meals in their anxiety to be slender. This leads to anemia or low bone compactness in adulthood. Anorexia nervosa, an eating disorder, is very common among young children. Due to irregular college or school schedules, the intake of caffeinated drinks is increased and the water intake is reduced. Poor nutrition can lead to reduced concentration in studies, hair fall, low stamina, depression and poor posture. Adolescents are also very conscious about the pimples and acne on their skin and face and tend to follow all the possible suggestions from people around them (Norbert Rego, 2012).

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A study was done by Toteja et al., 2006 on anemia among adolescent girls' across 16 districts in 11 states of India found that the prevalence rate of anemia 90.1% (Hb/dl <12g/dl) with almost 7% having severe anemia.

Food is related to psychological satisfaction. It affects dietary patterns among adolescent. During this period children have warm emotional feeling towards mothers cooked food. The primary function of food is to satisfy hunger but it gives pleasure at the end in itself. It is a symbol of security among children, as those deprived have poor food consumption power as compared to the required amount. Food is also considered as a token of friendship, this is the reason that children of teenage love to party and enjoy McDonald's and Pizzas with friends. Skipping breakfast affects health, concern that well known negative consequences both physically and psychologically (Farrow et al., 2014).

Irregular dietary habits have negative consequences not only on health but on academic performance, concentration and memory. Adolescents need to spend considerable time on academics, prepare for various competitive examinations, and functions at the highest level of concentration. A few studies examined the impact of breakfast and regular meals on academic performance and physical activity levels and found that a regular habit of eating breakfast as opposed to skipping this meal had a beneficial impact on attention, concentration, memory and school achievement (Gajre et al., 2008).

Education appears to be an important factor in reducing anemia while 22% of adolescent girls' aged 15-19 years and16% of boys' aged 15-19 had moderate to severe anemia, it is less than half (12%) among girls' who had completed 12 or more years of schooling and 5% among boys' in the same age group. Similarly, poverty is another important factor in poor nutritional status and anemia 22% of young women and 18% of young men belonging to the poorest households, compared to 13% and 6% from the richest households were found to be anemic. Anemia among young women cuts across place of residence - 18% of rural women and 16% of urban women are anemic (Sulabha Parasuraman et al., 2009).

**Materials and Methods:**

Nonetheless, nutritional assessment studies carried out between 1970s and 2018 have indicated the persistence of poor growth attainment in children particularly those from the rural areas.

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**Assessment of food habits, dietary and nutrient intake of subjects**

To understand the nutrient intake of an individual it is important to make dietary analysis. It is not a procedure to calculate adequate nutrition, it helps in evaluating intake and not the amount of nutrients absorbed or utilized for body mechanism. Diet is a vital determinant of health and nutritional status of people. The dietary habits of individuals vary according to socio economic factors, regional customs and traditions. Precise information on food consumption pattern of people, through application of appropriate methodology if often needed not only for assessing the nutritional status of people but also for elucidating the relationship of nutrient intake with deficiencies as well as degenerative diseases.

**Psychological test: Emotional Maturity Scale (EMS) questionnaire**

Adolescence is a period of emotional development. Mood swings are very common during this period, as hormonal changes occur in puberty. In the present study the Word emotional maturity mean the scores gained by sample subject on Singh and Bhargava Emotional Maturity Scale (1993). The scale has five components. A-Instability, B-emotional regression, C-social maladjustment, D-personality disintegration and E-lack of independence.

**Nutrition education**

In the following research the education was delivered among group of school going children. First the introduction of the researcher was given then the reason for nutrition on education program was explained to collect the data /information of nutrition knowledge and awareness among them. Nutrition education program was planned and executed accordingly in following steps:

- Pre education briefing
- Assessment of nutritional knowledge (pretest)
- The education method The materials used
- Post nutritional knowledge test (posttest)

**Abbreviations**

VNB : Vijayawada Normal Weight Boys'

VOB : Vijayawada Underweight Boys'

VUB : Vijayawada Over weight Boys'

VNG : Vijayawada Normal Weight Girls'

VOG : Vijayawada Over weight Girls'

VUG : Vijayawada Underweight Girls'

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CNB : Chennai Normal Weight Boys'

COB : Chennai Over weight Boys'

CUB : Chennai Underweight Boys'

CNG : Chennai Normal Weight Girls'

COG : Chennai Over weight Girls'

CUG : Chennai Underweight Girls'

**Results and Discussion:**

Adolescence is a period of emotional development. Mood swings are very common during this period, as hormonal changes occur in puberty. Another reason for the mood swing is efforts taken to uphold self-esteem which is affected by social, physical and cognitive changes which takes place during this period. It is difficult for adolescents to meet the challenges between their aspiration and social desire. This may exhibit to contradictory behaviors.

**Nutritional awareness**

In present study the knowledge of the adolescents on nutrition awareness with the help of questionnaire method in which a pretest was taken. The questionnaire was divided and framed into 4 groups; the topics were related to 1- Nutrition awareness 2-Food group, nutrients and Deficiency disorder, 3-Healthy habits, 4-Physicai Activity and lifestyle. After completion of pretest a presentation was given which covered all the above parameter. To know the amount of knowledge students have gained, an immediate feedback was taken through posttest paper.

The presentation and open discussion while filling the forms provided motivation created interest and the whole process of survey become unstressed full. The results of pre and posttest were tabulated in the given tables.

Table 01 and Fig 01 show the first part of pretest nutrition awareness score. Chennai scored better than Vijayawada in both girls' and boys' as the average range 4.5 to 5 where as in Vijayawada it was 4 to 4.5. In percentage the highest value of Chennai was (63.5%) and for Vijayawada (59.50%).

In posttest the highest average was of Chennai overweight girls' 6.75 (84.37%) and maximum increased % was 20.87 but in overall Vijayawada children score better than

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Chennai the highest average was 6.68 and in percentage (83.50%). The maximum increased % was of underweight girls' from Vijayawada 26.5%.

Critical ratio test was applied showing significant difference in percentage of pre and posttest on nutrition awareness hence knowledge gain was there among adolescents except in case of underweight boys' of Chennai. Thus hypothesis was rejected for all category except in underweight boys' of Chennai.

**Table: 01 Percentage of marks obtained under nutritional awareness among adolescents of Vijayawada and Chennai**

| S.No | Category | Pretest | Pretest % | Posttest | | Increased % | CR Value |
|---|---|---|---|---|---|---|---|
| | | Mean ±SD | | Mean ±SD | Posttest% | | |
| Vijayawada | | | | | | | |
| 1 | VNB | 4.47±1.94 | 55.87 | 6.08±1.63 | 76 | 20.12 | 7.66** |
| 2 | VOB | 4.76±1.61 | 59.5 | 6.12±1.26 | 76.5 | 17 | 4.85** |
| 3 | VUB | 4.23±1.57 | 52.87 | 6.07±1.60 | 75.87 | 23 | 8.76** |
| | Total | 4.43±1.75 | 55.37 | 6.08±1.55 | 76 | 20.62 | 12.69** |
| 1 | VNG | 4.64±1.70 | 58 | 6.29±1.39 | 78.62 | 20.62 | 10.31** |
| 2 | VOG | 4.72±1.53 | 59 | 6.68±1.00 | 83.5 | 24.5 | 8.16** |
| 3 | VUG | 4.25±1.86 | 53.12 | 6.37±1.09 | 79.62 | 26.5 | 8.15** |
| | Total | 4.57±1.70 | 57.12 | 6.38±1.26 | 79.75 | 22.62 | 15.08** |
| Chennai | | | | | | | |
| 1 | CNB | 4.54±1.76 | 56.75 | 5.32±1.61 | 66.5 | 9.75 | 4.33** |
| 2 | COB | 4.62±1.64 | 57.75 | 5.22±1.33 | 65.25 | 7.5 | 2.14* |
| 3 | CUB | 4.9±1.39 | 61.25 | 4.92±1.35 | 61.5 | 0.25 | 0.09 |
| | Total | 4.66±1.64 | 58.25 | 5.19±1.50 | 64.87 | 6.62 | 4.41** |
| 1 | CNG | 4.96±1.50 | 62 | 6.48±1.19 | 81 | 19 | 10.85** |
| 2 | COG | 5.08±1.21 | 63.5 | 6.75±0.89 | 84.37 | 20.87 | 9.59** |
| 3 | CUG | 4.62±1.69 | 57.75 | 6.37±0.94 | 79.62 | 21.87 | 7* |
| | Total | 4.92±1.47 | 61.5 | 6.53±1.08 | 81.62 | 20.12 | 16.1** |

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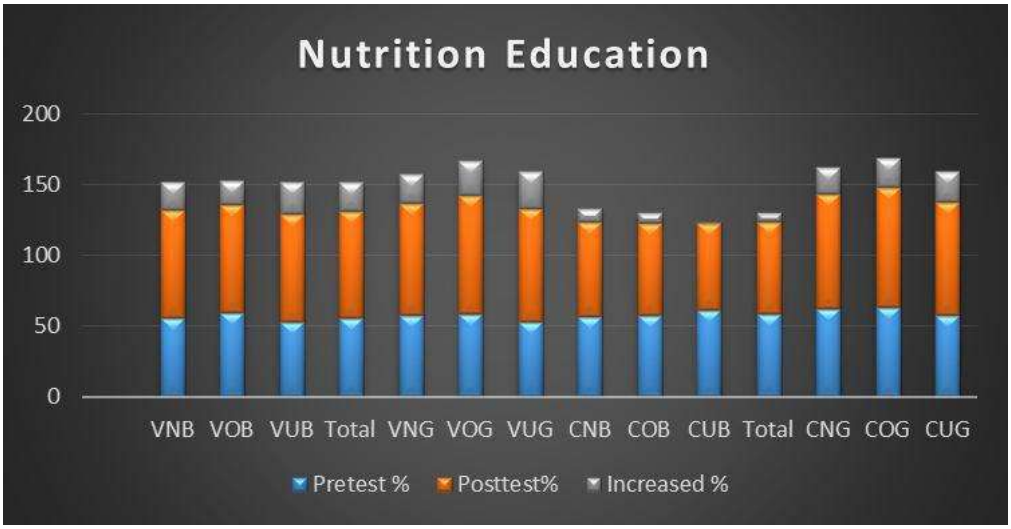
CR Values compared between pre and posttest. Table Value for 1%, 5% reported in Appendix. ** ($p<0.01$, *$p<0.05$), *$p<0.05$

**Fig: 01 Percentage of marks obtained in nutritional awareness in Vijayawada and Chennai**




**Food group, nutrients and deficiency disorder**

The data related to the percentage of marks in pre and posttest of nutritional knowledge in food group, nutrients and deficiency disorder among adolescents was given in Table 02 Fig 02 and 02. The highest percent of marks in pretest was obtained by underweight girls' of Chennai which was 60.4% and was followed by normal weight girls' 56% and overweight girls' 52.2% of Chennai.

In Vijayawada the highest score was obtained by normal weight girls' (51.16%) and was followed by overweight girls' 48.96% and underweight girls' 47.36%. From Vijayawada boys' score 45.84 % and in Chennai 43.8% scored in pretest.

In Posttest again Vijayawada adolescents performed well as compared to Chennai, the reason was students from Vijayawada were more attentive and alert when presentation was given. Moreover they were more disciplined, sincere and attentive.

In Vijayawada highest percentage was scored by overweight girls' 58.72% and increased % was 9.76. In Chennai over weight boys' and underweight girls' scored less marks as compared to pretest. Thus, in increased percent it was showing negative marks. At the same time highest scores were also from Chennai that was 61.4% gained by overweight girls' followed by normal weight girls' 60.32%. The least percentage was also observed in

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Chennai 45.6% by overweight boys'. Overall, it was observed that girls' scored more marks in posttest as compared to boys'.

Critical ratio test was applied to show the significant difference in percentage of pre and posttest on food group, nutrients and deficiency disorder hence knowledge gain was there among all adolescents except in case of overweight boys' from both the cities. Thus, hypothesis was partially rejected for all category except in over weight.

**Table: 02 Percentage of marks obtained under nutrients and deficiency disorder knowledge among adolescents**

| S. No | Category | Pretest Mean ±SD | Pretest % | Posttest Mean ±SD | Posttest% | Increased % | CR Value |
|---|---|---|---|---|---|---|---|
| Vijayawada | | | | | | | |
| 1 | VNB | 11.31±3.73 | 45.24 | 13.24±3.65 | 52.96 | 7.72 | 4.34** |
| 2 | VOB | 11.8±3.04 | 47.20 | 13.12±3.46 | 52.48 | 5.28 | 1.43 |
| 3 | VUB | 11.48±3.57 | 45.92 | 13.75±3.39 | 55 | 9.08 | 3.91** |
| | Total | 11.46±3.55 | 45.84 | 13.41±3.51 | 53.64 | 7.8 | 6.76** |
| 1 | VNG | 12.79±3.54 | 51.16 | 13.48±2.60 | 53.92 | 2.76 | 2.09* |
| 2 | VOG | 12.24±3.75 | 48.96 | 14.68±3.19 | 58.72 | 9.76 | 3.77** |
| 3 | VUG | 11.84±4.63 | 47.36 | 13.87±3.27 | 55.48 | 8.12 | 2.86** |
| | Total | 12.48±3.83 | 51.32 | 13.8±2.89 | 55.20 | 3.88 | 4.76** |
| Chennai | | | | | | | |
| 1 | CNB | 10.85±3.51 | 43.4 | 11.77±3.32 | 47.08 | 3.68 | 2.42* |
| 2 | COB | 11.62±2.91 | 46.48 | 11.4±3.81 | 45.60 | -0.88 | 0.33 |
| 3 | CUB | 10.71±3.81 | 42.84 | 12.35±2.74 | 49.40 | 6.56 | 3.20** |
| | Total | 10.95±3.49 | 43.8 | 11.87±3.26 | 45.88 | 2.08 | 3.33** |
| 1 | CNG | 14.00±3.49 | 56 | 15.08±2.87 | 60.32 | 4.32 | 3.09** |
| 2 | COG | 13.13±3.06 | 52.52 | 15.35±3.18 | 61.40 | 8.88 | 4.32** |
| 3 | CUG | 15.10±3.27 | 60.4 | 13.82±2.89 | 55.28 | -5.12 | 2.23* |
| | Total | 14.00±3.39 | 56 | 14.90±2.98 | 59.60 | 3.6 | 3.45** |

CR Values compared between pre and posttest. Table Value for 1%, 5% reported in Appendix. ** ($p<0.01$, *$p<0.05$), *$p<0.05$

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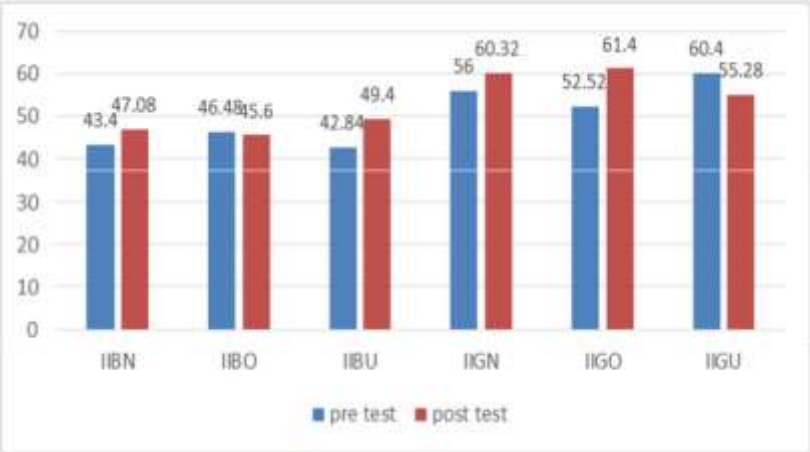
**Fig: 02 Percentage of marks obtained in food group, nutrients and deficiency disorder**




**Healthy habits**

The percentage of marks obtained under healthy habits in Pre and Posttest of Nutritional Education are shown in Table 03 and Fig 03. When overall pretest and posttest scores are compared within two places Chennai students perform better.

From Vijayawada boys' scored highest in pretest (73.33%) but in posttest no improvement was observed may be because they do not want to make any immediate changes in current life style or eating pattern. Thus increased percentage was zero. Girls' performed better in both pretest and posttest 77.16% and 80.83% respectively. Maximum percentage was gained by overweight girls' but more improvement was seen in underweight girls' and boys'.

From Chennai both scoring and improvement in knowledge was observed in boys' (71.33% pretest and 74.5% posttest) in girls' (79.33% pretest and 84.16% posttest). The highest increased % was of overweight boys' 9%.

The students showed interest for immediate change in eating pattern except underweight girls' and boys' of Chennai as they had poor scores in posttest reason may be they are comfortable with current eating pattern and monotonous diet as observed in 24hr recall. Thus, accordingly they might have answered with no change rigid thought process.

Critical ratio test was applied to show no significant difference in percentage of pre and posttest on healthy habits hence knowledge gain was not observed among all adolescents of Vijayawada except in underweight girls' and from Chennai knowledge gain was observed

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in all groups except normal weight and underweight boys'. Thus hypothesis was rejected for all category except in over weight.

**Table: 03 Percentage of marks obtained under healthy habits of adolescents of Vijayawada and Chennai**

| S. No | Category | Pretest Mean ±SD | Pretest % | Posttest Mean ±SD | Posttest% | Increased % | CR Value |
|---|---|---|---|---|---|---|---|
| Vijayawada | | | | | | | |
| 1 | VNB | 4.47±1.64 | 74.5 | 4.23±1.33 | 70.5 | -4 | 1.33 |
| 2 | VOB | 4.76±1.50 | 79.33 | 4.68±1.28 | 78 | -1.33 | 0.2 |
| 3 | VUB | 4.14±1.73 | 69 | 4.48±1.26 | 74 | 5.66 | 1.34 |
| | Total | 4.40±1.65 | 73.33 | 4.40±1.30 | 73.33 | 0 | 0 |
| 1 | VNG | 4.6±1.57 | 76.66 | 4.76±0.96 | 79.33 | 2.66 | 1.15 |
| 2 | VOG | 5.06±1.38 | 84.33 | 5.2±0.818 | 86.66 | 2.33 | 0.66 |
| 3 | VUG | 4.31±1.89 | 71.86 | 4.78±1.33 | 79.66 | 7.8 | 1.62 |
| | Total | 4.63±1.62 | 77.16 | 4.85±1.03 | 80.83 | 3.66 | 1.98* |
| Chennai | | | | | | | |
| 1 | CNB | 4.46±1.30 | 74.33 | 4.6±0.90 | 76.66 | 2.33 | 1.12 |
| 2 | COB | 3.7±1.23 | 61.66 | 4.25±1.05 | 70.83 | 9.16 | 2.49* |
| 3 | CUB | 4.3±1.60 | 71.66 | 4.35±1.20 | 72.5 | 0.83 | 0.22 |
| | Total | 4.28±1.40 | 71.33 | 4.47±1.02 | 74.5 | 3.16 | 1.89 |
| 1 | CNG | 4.59±1.50 | 76.50 | 4.97±0.91 | 82.83 | 6.33 | 2.80* |
| 2 | COG | 4.35±1.20 | 72.5 | 5.27±0.65 | 87.83 | 15.33 | 5.79* |
| 3 | CUG | 5.75±1.92 | 95.83 | 5.00±1.00 | 83.33 | -12.5 | 2.63* |
| | Total | 4.76±1.59 | 79.33 | 5.05±0.88 | 84.16 | 4.83 | 2.76** |

CR Values compared between pre and posttest. Table Value for 1%, 5% reported in Appendix-IX. ** ($p<0.01$, *$p<0.05$), *$p<0.05$

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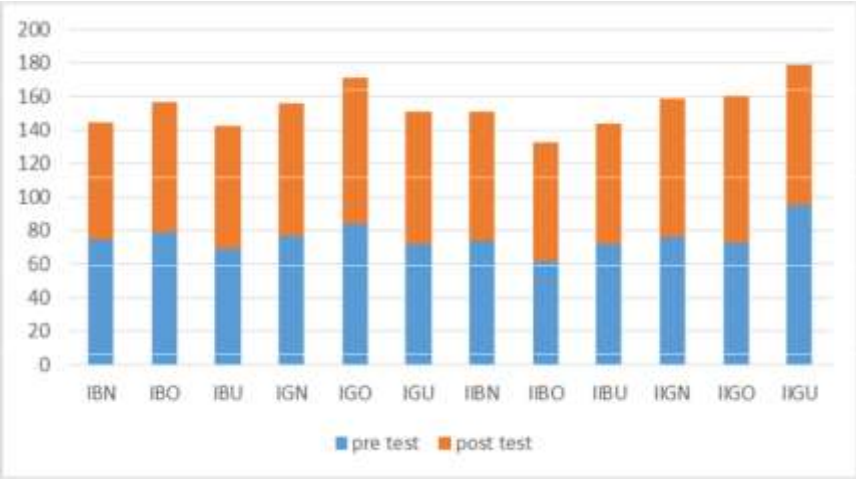
**Fig: 03 Percentage of marks obtained in healthy habits in Vijayawada and Chennai**




**Food habit and emotional maturity:**

Table 04 shows the impact of food habit on emotional maturity of adolescents in Vijayawada and Chennai. Under food habits 3 parameters were considered meal timings, type of diet and skipping breakfast. The statistical assessment- "chi square test for independency in contingency table" was applied to analyze experimental hypothesis. Thus the results showed that hypothesis for all the three parameters were rejected ($p<0.05$) as significant relation was associated between the two aspects.

When compared with the percentage it was observed that out of 261 respondents having irregular meal timings 60.91% were extremely unstable only 6.89% were stable, whereas out of 339 regular eaters 50.44% and 11.50% were extremely unstable and stable respectively.

In case of non- vegetarian also it was observed that the percentage of extremely unstable (60.05%) respondent was higher than vegetarian (46.9 %) and moderately stable were more in vegetarian (14.65%) respondents than non-vegetarian (10.05%).

Same pattern was observed in skipping breakfast, the percentage of respondent answered as no (do not skip at all) were 44.60% emotionally unstable which was less than those respondent answered as yes ( daily skip) were 66.66%, reveres results were seen in case of stability-do not skip at all were 14.55% and daily skip were 8.33%.

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**Table: 04 The impact of food habits on emotional maturity scale of adolescents in Vijayawada and Chennai**

| Food Habits | | Total number of Subjects | Emotional maturity scale | | | | |
|---|---|---|---|---|---|---|---|
| | | | Stable | Unstable | Moderately stable | Extremely unstable | $\chi 2$ |
| Meal Timings | Regular | 339 | 39(11.50) 1.43 | 78(23.00) 0.06 | 51(15.04) 2.95 | 171(50.44) 1.28 | 13.17 * |
| | Irregular | 261 | 18(6.89) 1.86 | 64 (24.5) 0.08 | 20(7.66) 3.84 | 159(60.91) 1.66 | |
| Types of diet | Non-vegetarian | 368 | 34(9.23) 0.03 | 76(20.65) 1.41 | 37(10.05) 0.98 | 221(60.05) 1.71 | 10.68 * |
| | Vegetarian | 232 | 23(9.91) 0.04 | 66(28.44)2.24 | 34(14.65) 1.56 | 109(46.9) 2.71 | |
| Skipping of breakfast | No | 213 | 31(14.55) 0.31 | 59(27.69) 1.46 | 28(13.17) 5.73 | 95(44.60) 4.19 | 24.10 * |
| | Sometimes | 277 | 17(6.13) 0.24 | 67(24.18)0.03 | 30(10.83) 3.30 | 163(58.84) 0.74 | |
| | Often | 14 | 1(7.14) 0.26 | 4(28.57) 0.14 | 1(7.14) 0.08 | 8(57.14) 0.01 | |
| | Yes | 96 | 8(8.33) 0.04 | 12(12.5) 5.06 | 12(12.5) 0.19 | 64(66.66) 2.38 | |

Note: Figures in parenthesis indicate percentages.

**Academic performance and emotional maturity**

The relation of emotional maturity with academic performance of adolescents in Vijayawada and Chennai were tabulated in table 05. Academic performance data was collected from respondents by taking their marks scored in last school exams. The statistical assessment chi square test for independency in contingency table was applied to analyze experimental hypothesis. Thus, the results showed that hypothesis was rejected ($p<0.05$) as significant relation was associated between the two aspects.

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When compared with the percentage it was observed that number of respondents scoring 80-90% were more stable (12.00%) than those scoring 40-50% (1.49%). Whereas just opposite was observed in case of percentage of respondents in extremely unstable maturity scale were high among the students scoring 40-50% (56.71%) than those scoring 80-90% (50.66%).

Respondents scoring 60-70% are generally considered as average performer, in this slab 60% were observed extremely unstable which was high among all the three slabs the reason might be the surrounding, peer pressure and stress due to studies.

**Table: 05 The impact of emotional maturity on academic performance of adolescents in Vijayawada and Chennai**

| Academic performance (% of marks) | Total number of subjects | Emotional Maturity Scale | | | | $\chi 2$ |
|---|---|---|---|---|---|---|
| | | Stable | unstable | Moderately stable | Extremely unstable | |
| 80-90% | 300 | 36(12.00) 1.97 | 75(25-00) 0.23 | 37(12.33)0.06 | 152 (50.66) 1.02 | |
| 60-70% | 233 | 20 (8.58) 0.21 | 54(23.17) 0.21 | 19(8.15)2.66 | 140 (60.00) 1.10 | |
| 40-50% | 67 | 1 (1.49) 4.52 | 13(19.40) 0.51 | 15 (22.33)6-31 | 38(56.71) 0.04 | |

Note: Figures in parenthesis indicate percentages.

**Summary and Conclusion:**

From the present study, it was observed that there was no significant difference between the groups for emotional maturity scale when compared within two cities, thus the hypothesis was accepted for all. In Chennai, maximum overweight, underweight boys' were extremely unstable. Whereas, maximum underweight girls' from Vijayawada were extremely stable.

After imparting the education, it can be said that in pretest of nutrition awareness questions Chennai scored better than Vijayawada in both girls' and boys'. Comparative assessment showed significant difference in percentage of pre and posttest among all the categories

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except for underweight boys' from Chennai hence the hypothesis for knowledge gain was accepted only for Chennai Boys under nourished.

Nutritional knowledge in food group, nutrients deficiency disorder was assessed. The results observed that girls' scored more marks in posttest as compared to boys'. Overall Vijayawada children performed better as compared to Chennai. Statistical analysis showed significant difference in percentage of pre and posttest, hence hypothesis was accepted only for overweight boys' from both the cities.

In Pre and Posttest of physical activity and lifestyle, all children performed well, showed improvement in knowledge gain. Thus, hypothesis was rejected for all categories. Children were aware of importance of exercise and sports for healthy and disease free life, also the harmful effects of drugs, alcohol, tobacco and cigarette. Boys' from Vijayawada and girls' from Chennai did better.

In case of academic performance when statistical analyses was done significant relation was observed between the two aspects thus hypothesis was rejected.

Those children in highly active, moderately active and mostly sedentary group that had spent time on physical activity showed a higher range (80-90%) of percentages in academic performance as against the sedentary group ( no physical activity at all). Statistical test showed that hypothesis (H6) was accepted ($p<0.05$). Significant relation was associated between the two aspects.

**Suggestions and Recommendations:**

It is suggested that adolescents, school teachers and parents should be informed about fiber, iron, vitamin C, vitamin A, calcium and zinc rich food items. Children need to be educated on weight management, balanced diet, selection of right food, proper eating habits and weight related health issues both under nutrition and over nutrition. It is recommended that the nutrition education should be imparted in a way that children are also involved in an activity, take interest in learning and in future apply it in daily life.

**References:**

1. UNICEF. Adolescents in India. A desk review of existing evidence and behaviours, programmes and policies. New Delhi: Population Council & UNICEF. 2013: Vii – 33.

2. Prashant K and Chandan Shaw. Nutritional Status of Adolescent Girls' from an Urban Slum Area in South India. Indian Journal of Pediatrics 2009; 76; 501-504.

3. Norbert Rego. Nutrition for adolescents. Times India. Feb 3. 2012.

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4. Toteja GS1, Singh P, Dhillon BS, Saxena BN, Ahmed FU, Singh RP, Prakash B, Vijayaraghavan K, Singh Y, Rauf A, Sarma UC, Gandhi S, Behl L, Mukherjee K, Swami SS, Meru V, Chandra P, and Chandrawati, Mohan U Prevalence of anemia among pregnant women and adolescent girls' in 16 districts of India. Food Nutr Bull 2006; 27(4): 311-315.

5. Farrow CV, Sampasa Kanyinga H, Roumeliotis P and Shi YF. Breakfast skipping is associated with cyber bullying and school bullying victimization. A school-based cross sectional study. Appetite 2014; 79:76-82.

6. Gajre, Fernaudez N.S. S, Baiakrishna N and Vazir S. Breakfast eating habit and its influence on attention-concentration, immediate memory and school achievement. Indian Journal of Pediatrics 2008; 45(10): 824-828.

7. Sulabha Parasuraman, Sunita Kishor, Shri Kant Singh, and Vaidehi Y. A Profile of Youth in India. National Family Health Survey (NFHS-3), India, 2005-06. Mumbai: International Institute for Population Sciences; Calverton, Maryland, USA: ICF Macro. 2009.