

## A COMPARATIVE STUDY OF NUTRITIONAL STATUS OF LATE ADOLESCENTS (16-19 YEARS) IN RFTC SERVED AND NON - RFTC SERVED RURAL AREAS OF KANPUR

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### ABSTRACT:

**Objective :** (1) To determine nutritional status among late adolescents in RFTC served and Non-RFTC served areas.

(2) To compare nutritional status among late adolescents in RFTC served and Non-RFTC served areas.

**Study design :** Cross sectional study.

**Setting :** RFTC served and Non-RFTC served rural areas of Kanpur.

**Participants :** 410 adolescents in each areas in the age group of 16-19 years.

**Statistical analysis:** Percentage, chi-square test

**Results:** Overall prevalence of anaemia was more (62.7%) in Non-RFTC served area as compared to that (40.2%) in RFTC served area ( $p < 0.05$ ). The regular consumption of green vegetables was more in RFTC served area (59.5%) than that in Non-RFTC served area (45.7%). 59.3% adolescents were found to be underweight in Non-RFTC served areas as compared to 49.3% in RFTC served areas.

**Conclusion :** The nutritional status of adolescents of RFTC served areas was found better than adolescents living in Non-RFTC served areas and this was due to better dietary habits, better knowledge and involvement of RFTC services to that areas.

### Introduction :

Adolescence is considered as a period of transition from "childhood to adulthood". Adolescence are divided into three phases each with specific characteristics; early adolescence (9-13 years), mid adolescence (14-15 years), late adolescence (16-19 years). Late adolescents have fully developed physical characteristics (similar to adults) and have formed a distinct identity and have well formed opinions and ideas. They suffer from many nutritional problems - underweight, overweight, nutritional anaemia, micronutrient deficiency etc. Undernourished adolescents may suffer from impaired growth, anemia, iodine deficiency, etc. It is also estimated that half of them suffer from nutritional anemia and about, 29% boys and 37% girls are stunted<sup>1</sup>. Adolescence is the last chance to correct the growth lag and malnutrition. Against this background, the present study was undertaken.

### Material And Methods :

It was a community based comparative study. The two study groups namely;

#### (1) RFTC served rural area :

RFTC is Field practice area of Deptt. of Community Medicine, G.S.V.M. Medical College, Kanpur. All the four villages served by Rural Field Training centre, Kalyanpur i.e. Bairy 1, Bairy 2, Naubasta and Khera were included in the present study. To find out the late adolescents (16-19 years) in all the four villages, complete enumeration was done through house to house visit. Following this, a total of 410 late adolescents were identified in RFTC served rural areas.

#### (2) Non-RFTC served rural areas :

As it was a comparative study, to find out the same number of late adolescents, four Non- RFTC served villages were selected using **Simple Random Sampling without Replacement Technique** from the same Kalyanpur rural block. The villages so selected were Hindupur, Hirdaipur, Naurangabad and Hora Banger. The study was terminated when 410 late adolescents were identified in other outreach areas. Study was carried out from July 2007 to June 2008. A predesigned and pretested questionnaire was used to collect all the relevant information with informed consent of respondents with their complete physical examination, BMI calculation (percentile chart) and haemoglobin estimation. (Sahli's haemoglobinometer). Statistical analysis was done by using percentage and  $\chi^2$  test.

### Observation and results :

The present study reveals that there were 58.05% were males and 41.95% were females in RFTC served areas, while 59.51% males and 40.49% females in Non-RFTC served areas. Most of the adolescents i.e. 89.8% & 97.8% respectively were Hindu in both study areas. Majority of adolescents in RFTC served areas as well as Non-RFTC served areas were students (69.8% & 57.3% respectively). Majority of the adolescents (48.0% & 29.6%) in RFTC served areas while 32.4% & 62.7% in Non-RFTC served areas belonged to social class IV and V respectively. (According to modified BG Prasad Social Classification as per AICPI March, 2007).

The literacy status of adolescents in RFTC served areas



was better than that of Non-RFTC served areas. Among the literates in RFTC served areas, most of them were educated

upto high school or above (83.3%), while the corresponding figure in Non-RFTC served areas was 70.8%.

Table 1  
DIETARY HABIT AMONG ADOLESCENTS

Dietary habit	RFTC served areas			Non-RFTC served areas		
	Male N=238	Female N=172	Total N=410	Male N=244	Female N=166	Total N=410
<b>(A) Type of diet</b>						
Vegetarian	93 (39.1)	142 (82.6)	235 (57.3)	126 (51.6)	139 (83.7)	265 (64.6)
Non Vegetarian	145 (60.9)	30 (17.4)	175 (42.7)	118 (48.4)	27 (16.3)	145 (35.4)
<b>(B) Frequency of meals</b>						
2 Times a Day	79 (33.2)	92 (53.5)	171 (41.7)	34 (13.9)	29 (17.5)	63 (15.4)
3 Times a Day	150 (63.0)	74 (43.0)	224 (54.6)	197 (80.7)	125 (75.3)	322 (78.5)
≥ 3 Times a Day	9 (3.8)	6 (3.5)	15 (3.7)	13 (5.4)	12 (7.2)	25 (6.1)

This table shows that the males had mostly three meals per day (63.0% and 80.7% respectively) in both study area while females mostly had two meals per day (53.5%) in RFTC served area and three meals per day (75.3%) in Non-RFTC served area.

Table 2  
CONSUMPTION PATTERN OF GREEN LEAFY VEGETABLES, MILK AND FAST FOOD

Food items	Consumption Pattern	RFTC served areas			Non-RFTC served areas		
		Male N=238	Female N=172	Total N=410	Male N=244	Female N=166	Total N=410
Green leafy vegetables	Regular	138 (58.0)	106 (61.6)	244 (59.5)	117 (48.0)	70 (42.2)	187 (45.7)
	Occasional	94 (39.5)	55 (32.0)	149 (36.3)	113 (46.3)	84 (50.6)	197 (48.0)
	Never	6 (2.5)	11 (6.4)	17 (4.2)	14 (5.7)	12 (7.2)	26 (6.3)
Milk	Regular	76 (31.9)	39 (22.6)	115 (28.1)	89 (36.5)	45 (27.1)	134 (32.6)
	Occasional	129 (54.2)	78 (45.4)	207 (50.5)	127 (52.0)	92 (55.4)	219 (53.4)
	Never	33 (13.9)	55 (32.0)	88 (21.4)	28 (11.5)	29 (17.5)	57 (14.0)
Fast food	Regular	24 (10.0)	15 (8.7)	39 (9.5)	8 (3.3)	2 (1.2)	10 (2.4)
	Occasional	201 (84.5)	142 (82.6)	343 (83.7)	203 (83.2)	145 (87.4)	348 (84.9)
	Never	13 (5.5)	15 (8.7)	28 (6.8)	33 (13.5)	19 (11.4)	52 (12.7)

$\chi^2=15.18, df=1, p<0.05$  (green vegetables),  $\chi^2=2.08, df=1, p>0.05$  (milk)

$\chi^2=18.25, df=1, p<0.05$  (fast food)-regular Vs irregular in RFTC/Non RFTC served area

Table shows that the regular consumption of green vegetables was more in RFTC served area (59.5%) than that in Non-RFTC served area (45.7%) and this difference was found to be statistically significant. ( $p<0.05$ ).



Table 3  
PREVALENCE OF ANAEMIA AMONG ADOLESCENTS

Grades of Anaemia	RFTC served areas			Non-RFTC served areas		
	Male N(%)	Female N(%)	Total N(%)	Male N(%)	Female N(%)	Total N(%)
Normal ( $>12$ gm/dl)	156 (65.5)	89 (51.7)	245 (59.8)	122 (50.0)	3 (18.7)	153 (37.3)
Mild (11.9-10. gm/dl)	77 (32.4)	70 (40.7)	147 (35.8)	120 (49.2)	118 (71.1)	238 (58.1)
Moderate (9.9-7.0 gm/dl)	5 (2.1)	13 (7.6)	18 (4.4)	2 (0.8)	17 (10.2)	19 (4.6)
Severe ( $<7.0$ gm/dl)	0	0	0	0	0	0
Total	238 (100)	172 (100)	410 (100)	244 (100)	166 (100)	410 (100)

$\chi^2=41.81$ ,  $df=1$ ,  $p<0.05$ (RFTC/NON-RFTC Vs Anaemia),  $\chi^2=39.19$ ,  $df=1$ ,  $p<0.05$ (anaemia in male Vs female)

This table reveals that Overall prevalence of anaemia was more (62.7%) in Non-RFTC served area as compared to that (40.2%) in RFTC served area ( $p<0.05$ ). Prevalence of anemia was more in females (48.3% & 81.3% respectively) as compared to males (34.5% & 50.0% respectively) in both the study areas. ( $p<0.05$ ).

Table 4  
PATTERN OF BODY MASS INDEX AMONG ADOLESCENT

BMI for age (Percentile)	RFTC served areas			Non-RFTC served areas		
	Male	Female	Total	Male	Female	Total
Underweight	111 (46.6)	91 (52.9)	202 (49.3)	140 (57.4)	103 (62.1)	243 (59.3)
Normal	127 (53.4)	80 (46.5)	207 (50.5)	104 (42.6)	62 (37.3)	166 (40.5)
Overweight	0	1 (0.6)	1 (0.2)	0	1 (0.6)	1 (0.2)
Total	238 (100)	172 (100)	410 (100)	244 (100)	166 (100)	410 (100)

$\chi^2=15.18$ ,  $df=1$ ,  $p<0.05$ (normal Vs underweight in both areas)

Table shows that 59.3% adolescents were found to be underweight in Non-RFTC served areas as compared to 49.3% in RFTC served areas and this difference was found statistically significant. ( $p<0.05$ ).

#### Discussion :

The higher prevalence of anaemia (62.7%) in Non-RFTC served area as compared to that (40.2%) in RFTC served area could be due to ignorance about anaemia and easily and locally iron rich substance and other food substances. Prevalence of anemia was more in females (48.3% & 81.3%) as compared to males (34.5% & 50.0% respectively) in both the study areas. ( $p<0.05$ ) could attributed to inadequate knowledge about iron rich easily and locally available food substances and prevailing food prejudices in the females in

the both areas. Similar finding suggested by Verma et al (2004)<sup>2</sup>, in which Prevalence of anaemia (Hb $<12$  gm/dl) on school going girls was to be 81.8%. Kaur S et al (2006)<sup>3</sup> also observed the prevalence of anemia in late adolescents to be 64% in 630 subjects.

Regarding nutritional status through measuring BMI, 59.3% adolescents were found to be underweight in Non-RFTC served areas as compared to 49.3% in RFTC served areas findings were supported by Chaudhary S et al (2003)<sup>4</sup>



who studied on 270 adolescents girls in rural area of Varanasi and found that 68.52% were undernourished (BMI<18.5). Perera et al (2007)<sup>3</sup> also found that the majority 64% of the males and 63% of the females were underweight in 15-19 years.

Thus overall status of adolescents of RFTC served area were found satisfactory than non-RFTC served area, this could be because of health promotional activities of health functionaries of RFTC kalyanpur and their active participation in that areas.

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## OBITUARY

### Dr. S.D. Gaur

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Dr. Shambhu Dayal Gaur was the first professor & Head of Department of PSM, Institute of Medical Sciences BHU. The efforts of Dr. Gaur in the progress and over all development of the Department in the formative years was unmatched and appreciable.

Dr. Gaur was highly interested in the field of Epidemiology and his research in various public Health Problems was outstanding. He published over hundred scientific papers in National and International Journals and presented and chaired various conferences and seminars. He was honoured by National and State level academic association by conferring their fellowships and inviting him to deliver orations.

In his passing away, the discipline has lost an excellent teacher, good human being and a research scholar. We all members of IJCH and Faculty of Department of Community Medicine of all Medical Colleges of UP, mourn his death and pray to Almighty, may his soul rest in peace.