

**"A STUDY ON THE NUTRITION AND HEALTH STATUS OF
ADOLESCENT GIRLS IN GOVERNMENT SCHOOLS OF
NARAYANPET"**

**JIGNASA STUDENT STUDY PROJECT
in
ZOOLOGY**

Submitted to

**Commissioner of Collegiate Education
Government of Telangana**

By

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Under the guidance of
DR. MD. RIYAZ KHAN



**DEPARTMENT OF ZOOLOGY
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NARAYANPET DISTRICT, T.S. 509210**

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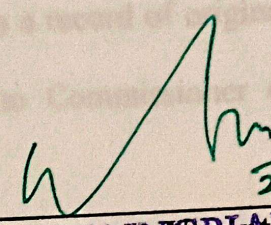


SNM GDC, NARAYANPET
Academic Year, 2021-2022

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CERTIFICATE

This is to certify that the project work entitled " **A Study on the Nutrition and Health Status of Adolescent Girls in Government Schools of Narayanpet** " This work has been carried out by P.Shivani Reddy, S. Ashwini, K. Shivani, P. Mamatha, B. Meghana Reddy of Department of Zoology, SCNM Govt. Degree College- Narayanpet is a record of original research work done by aforementioned students being submitted to Commissioner of Collegiate Education Government of Telangana.

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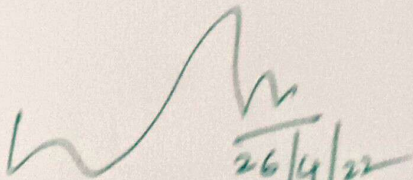
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CHAPTER – I

INTRODUCTION

I. INTRODUCTION

Anaemia is a broad term applied to the condition in which there is inadequate or defective formation of haemoglobin and defective maturation and formation of red blood cells. Nutritional anaemia may be defined as the condition that results from the inability of the erythropoietic tissue to maintain a normal haemoglobin concentration on account of inadequate supply of one or more nutrients leading to reduction in the total circulating haemoglobin. Nutritional anaemia is caused by the absence of any dietary essential that is involved in haemoglobin formation or by poor absorption of these dietary essentials. Some anaemia are caused by lack of either dietary iron or high quality protein; by lack of pyridoxine(vitamin B6) which catalyses the synthesis of the heme portion the haemoglobin molecule; by lack of vitamin E which affects the stability of the red blood cell membrane. Copper is not part of haemoglobin molecule but aids in its synthesis by influencing the absorption of iron, its release from the liver or its incorporation into haemoglobin molecule.

Significance of the study

Anaemia is a worldwide problem in persons of all ages; it is not a diagnosis but rather a sign or symptoms of an underlying disorder. The rate of prevalence is higher in the developing countries. In India the prevalence of anemia among adolescent and college girls, non pregnant and pregnant women, and children under 6 years of age is seen in higher percentage. Iron deficiency and anemia reduce work capacity of individuals and entire population, and obstacles to national development. Conversely, treatment can arise national productivity levels by 20 %.

In developing countries, where IDA(Iron Deficiency Anaemia) is widely prevalent, universal iron supplementation to people of vulnerable groups would be appropriate. In segments of the population of higher socio- economic groups, selective provision of iron supplements only to anemic individual would be preferable. This approach, however, requires screening of individuals for IDA, requiring suitable skilled staff and laboratory facilities. The success of such a program depends on the distribution of adequate quantities of iron supplements and adherence to treatment. The experience in India is an example of the shortcomings of such program when attempted on a large scale. In 1970, India adopted a national program of supplementation of daily iron and folic acid tablets (for 100 days) to pregnant women, lactating mothers and young children.

Unfortunately, under the present socioeconomic conditions in which the current dietary intakes are not adequate, people in developing countries will continue to require iron supplementation to meet their iron needs. For this reason, there is a need for alternative approaches to supplementation such as the use of small - dose iron supplementation and slow release iron preparations. Slow release iron preparations can achieve the same benefit as the lower dose iron with very few side- effects. Weekly iron supplementation in place of daily iron distribution has also been suggested this may result in greater absorption of the iron dose, but may only be effective under supervised conditions.

Person-to-person communication still remains an effective method of communication in most of the developing countries. Group talks, slide shows, folk plays, street plays, television and radio are the other methods of nutrition education. Social marketing which applies marketing principles to improve nutrition awareness by involving communication experts, may be one of the strategies to be adopted.

There is a need to provide scientific information to college girls regarding health and nutrition and anemia, as they are the major portion of Indian population. So there is a need to create overall awareness regarding anemia and its prevention. This will help in attaining good health, providing good information and decrease the myths about anemia, as it is necessary for healthy living and good economy of the country. The measurement of knowledge of selected communities towards anemia and nutrition is useful to health workers for researching and designing approaches in right direction. This study will also be helpful to students, researchers, people of NGO's and government and all those engaged in the field of health and nutrition to implement and create awareness through education programs.

Keeping all these points in view, detailed investigations were undertaken with the following objectives.

Objectives:

- 1. To assess the anaemia status in adolescent girls.**
- 2. To Study the Anthropometric Measurement of girls.**
- 3. To know the Dietary Habits and Nutritional intake of the girls.**

CHAPTER – II

REVIEW OF LITERATURE

II. REVIEW OF LITERATURE

The comprehensive review of literature is an essential part of any scientific investigation. The review of literature leads the researcher to conclude the findings with references to past studies.

School going children play a very important role in the future development of the nation. It is estimated that around 43 crore children in the age group of 0-18 years are residing in India. Nearly every fifth young child of the world lives in India (Niti Ayog, 2017). Those who are especially in the age group of 10-17 years need much more attention as this period lays the foundation for good health and sound mind which endures with them throughout their life (Suvarna and Itagi, 2009). Their health as an area of policy option has been given attention by health economists, public health experts, planners, etc. They are recognized not only for what they are today but also for their future roles empowering the work force of the society (Shaikh et al., 2016; Chandran, 2010).

School-age period is evident for rapid growth and development of children which is noticeable in the form of growth spurts. Pre adolescence growth spurt is seen at around 6-8 years of age which is followed by the adolescent growth spurt which occurs between 10-17 years of age. During this stage of the life cycle, adolescents experience changes such as physical growth, improved gross and fine motor skills and biological maturity. These growth spurts have demand for extra nutritional requirements. Moreover, adolescent girls need additional iron to compensate for menstrual blood loss. To maintain physical growth, sexual maturation, mental development, performance, productivity, health, and well-being of adolescents, close monitoring of their nutritional status is required (Rawat et al., 2014).

Recent data on child undernutrition (age=0-5 years) from NFHS-4 (2015-2016a) shows that there are about 38% stunted, 21% wasted and 35.7% underweight children in India. The comparison between NFHS-3 (2005-2006a) and NFHS 4 (2015-2016a) child undernutrition data of under 5 years of age children clearly depicts that stunting and underweight prevalence has gone down, but trends in wasting show an overall increase in the last decade. The decline in stunting and underweight prevalence was 1% and 0.68 % per year (Niti Ayog, 2017). However, the pace of reduction remains low and calls for more focussed and determined actions.

It was reported in the Global Nutrition report (2015) that 40% of the women of reproductive age (15-49 years) in India were found to be underweight and 20% of them were stunted. According to Rapid Survey on children (2013-2014) in India, Rajasthan ranked first from bottom with 60% of the adolescent girls in the age group of 15-18 years having low body mass index. The nutritional status of children, adolescent girls and women needs much more attentive care, as it is affecting the growth of the country also.

Micronutrient deficiency related malnutrition is also one of the burning problems in developing countries, out of which anemia is one of the major public health problem. According to World Health Organisation (WHO) 'anemia is the decreased ability of the red blood cells to provide adequate oxygen to body tissues. It may be due to a decreased number of red blood cells, a decreased amount of a substance in red blood cells which transports oxygen (haemoglobin) or a decreased volume of red blood cells' (WHO, 2011). Iron deficiency is the most common cause of anemia worldwide. Iron deficiency anemia is a decrease in the total haemoglobin levels due to insufficient iron stores in the body. Iron is needed to form haemoglobin and is mostly stored in the body in the form of ferritin and hemosiderin. About 30% of iron is stored as ferritin and hemosiderin in the bone marrow, spleen, and liver. Iron deficiency anemia does not develop immediately. Instead, a person progresses through stages of iron deficiency, beginning with iron depletion, in which the amount of iron in the body is reduced but the amount of iron in the red blood cells remains constant. If iron depletion is not corrected, it proceeds to iron deficiency, which eventually leads to iron deficiency anemia (Camaschella, 2015; Burke et al., 2014; Miller, 2013).

The main causes of iron deficiency among school going children are nutrient deficient diet, malabsorption of iron, increased requirement during their growth periods, menstrual blood loss, hookworm infestation, malaria and other infectious diseases (WHO, 2016c ; Soliman et al., 2014; Miller, 2013). Poor diet quality and low dietary iron bioavailability are the major factors that contribute to the increased incidence of anemia. The presence of haeme iron in animal food products has better absorption rates of 20%-30% than non-haeme iron containing food items. The bioavailability of non-haeme iron is determined by the presence of enhancing or inhibiting factors. The main enhancers of non-haeme iron absorption are meat (haeme iron) and vitamin C. Inhibitors include phytates (nuts, bran and oat products, whole-wheat and brown flour), polyphenols (tea, coffee, cocoa, some spices and vegetables), calcium (milk products) and phosphorous (Walczyk et al., 2014; Collings et al., 2013; Hurrell and Egli, 2010).

Siddharam et al. (2011) conducted a study to estimate the prevalence of anemia among adolescent girls and to study the socio-demographic factors associated with anemia. A cross sectional survey was conducted in selected Anganwadi centers of rural area of Hassan district. 314 adolescent girls (10-19 years) were included in the study. The study was conducted from February to April 2011 (3 months). Data analysis was done by using proportions and chi-square test. Prevalence of anemia was found to be 45.2%, a statically significant association was found with iron deficiency anemia, weight loss and anemia; pallor and anemia. In the present study it was seen that among the 45.2% of anemic adolescent girls 40.1% had mild anemia, 54.92% had moderate anemia and 4.92% had severe anemia. A high prevalence of anemia among adolescent girls was found, which was higher in low economic strata. It was seen that anemia affects overall nutritional status of adolescent girls.

Premlatha et al. (2012) conducted a study to estimate prevalence of iron deficiency anemia among adolescent schoolgirls in the age group 13-17 years in Chennai and to study the associated factors. A cross sectional survey was carried out among 400 school students. The prevalence of anemia was found to be 78.75% among school girls. The results of the study show that the factors such as age, literacy status of mother, types of family, community, weight, diet, frequency of intake of green leafy vegetables and fruits, menstrual discharge and deworming are the factors contributing to the prevalence of anemia.

Savita et al. (2013) studied the impact of education intervention on nutritional knowledge of iron deficiency anaemia among 207 post adolescent girls of 18-25 years of age in Bangalore. The prevalence of anaemia observed that 53.14 % were found to be moderately anaemic, 42.51 % were found to be mildly anaemic and 2.89 % were to be found severely anaemic and only 1.44 % had normal haemoglobin level. The prevalence of anaemia in the study population was very high i.e. 98.66%. There is close association between the maternal body weight and incidence of low birth weight. The lactation failure is also more common occurrence among the adolescents resulting in high infant mortality and morbidity due to early introduction of supplements. Due to small size of the pelvis there is increase in the rate of premature deliveries and also high incidence of low birth weight babies. One third of the adolescents are married before the age of 19 years (Furstenberg 1987).

Imtiyaz Ali (2006) the adolescent dietary intake showed calorie deficit up to 20 per cent of RDA at 10 to 12 years which reaches up to 25 per cent by 15 years. The deficit is

more common among girls. This calorie deficit coupled with other specific nutrient deficiencies like iron, iodine and vitamin A.

A survey conducted by "Pati" (2004) on adolescent girls found that weakness is the common disease from which most of the adolescent girls suffer followed by anemia.

Hulton (1991) observes that the amount of iron needed to be absorbed to meet the iron requirement in 95 per cent of menstruating teenage girls is 3.21 mg/d. Prevalence of iron deficiency was quite high 40 per cent in a representative sample of 222 girls aged 15-16 years. The finding from different surveys in general boys appear to prefer meat and dairy products while girls prefer artificially sweetened drinks (Health 21).

WHO (1998) survey of Delhi Public School reveals that 53 per cent of children between 10 and 14 years, 45 per cent between 15 and 19 years take snack junk food everyday in "Delhi" and "Chandigarh" it was found that 1 in every 4 teenagers are obese. While a study of school children in Chennai shows 18 per cent boys and 16 per cent of girls are overweight. In contrast teenage obesity in the US is estimated to be below 15 per cent while in UK the figure is just 7.3 per cent.

WHO report (2011) reveals that anemia prevalence in adolescent girls is very high ranging from 50% to > 90%. In 2006, the overall prevalence of anemia has been reported to be extremely high at 90.1 % in adolescent girls of 11-18 years of age, from 16 districts in 4 regions of India. The study also confirms that 85 % of pregnant women were anemic. In a study of adolescent girls (10-19 years) in urban slums of Southern India, Andhra Pradesh, anemia prevalence is reported to be 67.9 % where moderate anemia 37.05%, mild anemia 21.42 % and 9.4 severe anemia was seen, while another study from Ranga Reddy district of Andhra Pradesh reported anemia prevalence in girls 13-15 years to be 83%. Where as under nutrition is reported (stunting) in one – third of adolescent population, prevalence of anemia is almost universal.

CHAPTER – III

MATERIAL AND METHODS

III. MATERIAL AND METHODS

The Investigation were conducted on the nutrition and health status adolescent girls carried out during 5-10-2021 to 15-12-2021. At Government schools of Narayanpet of Narayanpet District. The study was undertaken on 200 girls.

The study sample was selected using the following methods.

1. Haemoglobin colour scale method
2. Anthropometric measurement method
3. Questionnaire cum interview technique

Data collection :

The information was collected from primary as well as secondary sources. In primary sources questionnaire cum interview technique was used. In secondary source journals, books and related literature were studied.

Body Mass Index (BMI) was calculated by the following formula:

$$\text{BMI} = \frac{\text{Weight (kg)}}{\text{Height (m}^2\text{)}}$$

It is a popular tool used to classify the degree of obesity. It is based upon a relationship between height and weight. It is used to assess thinness or obesity in the sample.

BMI Classifications:

Under Weight < 18.5.

Normal weight 18.5 to < 25.

Over Weight 25 < 30.

Obesity > 30.

Haemoglobin(Hb) level and Degree of Anaemia:

1. Hb 11 gm% or more Non-Anaemic.
2. Hb 7 to 11 gm% Mild to moderate anaemia
3. Hb less than 7 gm% Severe anaemia

Source: Sutra (2005) Food and Nutrition World, Institute of Science Bangalore.

CHAPTER – IV

RESULTS AND DISCUSSION

IV. RESULTS AND DISCUSSION

Investigation on the nutrition and health status adolescent girls carried out at Government schools of Narayanpet of Narayanpet District. The result of the study are summarized as follows:

1. Haemoglobin Percentage (Hb %)
2. Anaemia
3. Body Mass Index (BMI)
4. Dietary Habits

Table 1. Hb% of girls.

students	Hb > 11gm%		Hb 7 to11 gm%		Hb < 7gm%		Total	
	No.	%	No.	%	No.	%	No.	%
Girls	30	15	154	77	16	8	200	100

Table 2. Anaemic status of girls.

Students	Hb > 11gm%		Hb 7 to11 gm%		Hb < 7gm%		Total	
	Non-Anaemic		Mild to moderate anaemia		Severe anaemia			
	No.	%	No.	%	No.	%	No.	%
Girls	30	15	154	77	16	8	200	100

Data presented in Table 1 and Table 2. revealed that 15% of girls were Non anaemic with Hb > 11 gm%. 77 % of girls were mild to moderate anaemia with Hb 7 to 11 gm%. whereas 5% of girls were severe anaemia with Hb < 7gm%.

Table 3. BMI of girls.

Students	BMI < 18.5 Under weight		BMI 18.5 < 25 Normal weight		BMI 25<30 Over weight		BMI >30 Obese		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%
Girls	95	47.5	75	37.5	20	10	10	5	200	100

Table 3. gives the BMI of the girls. It was found that 47.5% girls were under weight with BMI < 18.5. 33.3% girls were normal with BMI more than 18.5 < 25. 10 % of them were overweight with BMI more than 25. 5% of girls were obese with BMI > 30. The observations in the present study were better than reported findings of Hampton (1967 and 1966), who reported 14% of girls were graded as obese and in another study he reported 25% girls were under weight.

Table 4. Dietary habits.

4.1. Consumption pattern of Cereals by girls

Food item	Daily		Twice in a week		Weekly		Rarely		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%
Rice	200	--	-	-	-	-	-	-	200	100
Jowar	78	39	68	34	38	19	16	8	200	100
Wheat	14	7	32	16	103	51.5	41	20.5	200	100

Data presented in Table 4.1, revealed consumption pattern of cereals by girls Rice and Jowar is a staple food of adolescents girls. 39% of girls consume Jowar daily. 7 % of girls consume wheat daily. The consumption pattern revealed that maximum population of Telangana are rice eaters.

Table 4.2. Consumption pattern of Vegetables by girls

Food item	Daily		Twice in a week		Weekly		Rarely		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%
Vegetables	82	41	84	42	30	15	4	2	200	100

Table 4.2. gives the consumption pattern of Vegetables by girls. 41 % of girls consumed vegetable daily. 42% of girls consumed vegetable twice in a week. 15 % of girls consumed green leafy vegetable weekly. 2.% of girls consumed vegetable rarely. The consumption pattern revealed that still in most of the families, single vegetable preparation was common. This effects their balanced diet and also make them prone to nutritional and health diseases in girls. These finding highlights the very special type of nutrition education among adolescents of all age groups girls.

Table 4.3. Consumption pattern of Fleshy foods by girls

Food item	Daily		Twice in a week		Weekly		Rarely		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%
Meat	-	--	-	-	169	84.5	31	15.5	200	100
poultry	-	-	-	-	193	96.5	7	3.5	200	100
Fish	-	-	-	-	23	11.5	177	88.5	200	100
Egg	5	2.5	94	47	97	48.5	4	2	200	100

Table 4.3. gives the consumption pattern of fleshy food by girls. The number of girls who consume meat weekly was 84.5% . 95.3% of girls consumed poultry weekly. 88.5% of girls consumed fish rarely. 2.5% of girls consumed egg daily. 47% of girls consumed egg weekly. The findings are comparable to the findings of Kurz (1996) who reported because of less consumption of fleshy food which are rich sources of Iron, many adolescents develop Iron deficiency anaemia. Pati (2004) a study on adolescent girls also reported poor intake of fleshy foods by adolescent because of low socio status.

Table 4.4. Consumption pattern of Milk and Milk products by girls

Food item	Daily		Twice in a week		Weekly		Rarely		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%
Milk	56	28	77	38.5	50	25	17	8.5	200	100
Curd	51	25.5	116	58	31	15.5	3	1.5	200	100
Butter	9	4.5	93	46.5	88	44	10	5	200	100

Table 4.4. gives the consumption pattern of milk and milk products by girls. 28% of girls consumed milk daily. 25.5% of girls consumed curds daily. 4.5% of girls consumed butter daily. The present study findings are comparable to the findings of Davis (1969) an extensive research on adolescent food habits and nutritional status revealed that consumption of milk and milk products were very less in adolescent diet because of poverty.

Table 4.5. Consumption pattern of Fruits by girls

Name of the item	Daily		Twice in a week		Weekly		Rarely		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%
Fruits	3	1.5	14	7	135	67.5	48	24	200	100

Table 4.5.gives the consumption pattern of fruits by girls. 1.5 % of girls consumed fruits daily. 14 % of girls consumed fruits twice in a week and 67.5 % of girls consumed fruits weekly. 24 % of girls consumed fruits rarely. The consumption of fruits is seasonal in Telangana and consumption pattern of fruits were very less in adolescent girls diet because of poverty.

Table 4.6. Consumption pattern of Dry Fruits by girls

Food item	Daily		Twice in a week		Weekly		Rarely		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%
Dry fruits	2	1	8	4	38	19	152	76	200	100

Table 4.6. gives the consumption pattern of dry fruits by girls. 1% of girls consumed dry fruits daily. 4 % of girls consumed it twice in a week. 19 % of girls consume weekly. 76 % of girls consume it rarely. As most of the adolescents girls belong to poor and low economic status family, it is not under their budget and cannot therefore afford.

Table. 5. Water habits of girls

Students	Boiled and filtered water		Un boiled and Un filtered water		Total	
	No.	%	No.	%	No.	%
Girls	143	71.5	57	28.5	200	100

Table 5. gives the water habits of girls. While analyzing the table it was observed that still 28.5% of girls use un-boiled and un-filtered drinking water.

CHAPTER – VI

SUMMARY & CONCLUSION

V. SUMMARY AND CONCLUSION

The Investigation on the nutrition and health status adolescent girls carried out during 5-10-2021 to 15-12-2021. At Government schools of Narayanpet of Narayanpet District.

The findings of the study are summarized as follows: - 4

1. The Haemoglobin paper colour test revealed that 15 percent of girls were Non anaemic and 77 percent of girls were mild to moderate anaemia. whereas 8 % of girls were severe anaemic.
2. The BMI analysis of girls shows 47.5 per cent girls were malnourished (under-weight) 37.5 per cent were normal weight, 10 per cent over weight and 5 per cent were obese.
3. The consumption pattern of cereals by girls shows that 39 per cent of girls consume Jowar daily only 7 percent of girls consume wheat . Rice is a staple food.
4. The consumption pattern of Vegetables by girls shows that 41 percent of girls consumed vegetable daily. 2 % of girls consumed vegetable rarely.
5. The consumption pattern of fruits and Dry fruits shows that only 1.5 per cent of girls eat fruits daily and 24 per cent of girls eat fruits rarely. whereas 1 percent of girls eat dry fruit daily and 67.5 percent of girls eat dry fruits rarely.
6. The consumption pattern of protein rich foods like meat-chicken-fish-egg shows that 84.5 per cent of girls eat meat weekly and 96.5 percent of girls eat poultry weekly where as 88.5 percent of girls eat fish rarely. Here meat-chicken-fish didn't eat daily, whereas 2.5 percent of girls eat egg daily.
7. The consumption pattern of milk and milk products shows that 28 percent of girls consumed milk daily. 25.5 percent of girls consumed curds daily. 4.5 percent of girls consumed butter daily.
8. Water habits of girls shows that 71.5 percent of girls use filtered water and 28.5 percent of girls use unfiltered water.

Recommendations:

Based on the present study recommendations are made here :-

- . Iron and folic acid enrich food items have to be provide weekly thrice for college girls Instead of Iron folic acid tablets.

(In Weekly 3 days iron and folic acid enrich food items, Remaining 3 days Iron folic acid tablets have to be provide for girls. It will give good results and overcome the anaemia in adolescents and college girls.)

- . Popularization of iron rich recipes among the masses through mass media and other modes of nutrition education.
- . Knowledge intervention program will be conducted more precisely and cover in depth knowledge about health and nutrition not only among the college girls but to the parents.
- ✓ . The present study was confined to Government schools of Narayanpet. A similar study could be replicated in other Govt. Schools of the district for the better health improvement of school girls

CHAPTER – VII

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APPENDICES

QUESTIONNAIRE

" A STUDY ON THE NUTRITION AND HEALTH STATUS OF ADOLESCENT GIRLS IN
GOVERNMENT SCHOOLS OF NARAYANPET "

I. General information

1. Name of the Respondent-----

Age-----Gender-----

Address-----

Class-----

II. How often do you take these cereals foods :-

Daily / Twice in a Week / Weekly / Rarely

1. Rice
2. Wheat
3. Jowar
4. Any other

III. How often do you take these Dry fruits :-

Daily / Twice in a Week / Weekly / Rarely

1. Almond
2. Cashew-nut
3. Walnut
4. Any other

IV. How often do you take these Vegetables :-

Daily / Twice in a Week / Weekly / Rarely

1. Spinach
2. Cabbage
3. Brinjal
4. Tomato
5. Ladies Finger
6. Potato
7. Beans
8. Capsicum
9. Carrot
10. Radish
12. Any other

V. How often do you take these Milk foods :-

Daily / Twice in a Week / Weekly / Rarely

1. Milk
2. Curds
3. Butters
4. Any other

VI. How often do you take these Fruits :-

Daily / Twice in a Week / Weekly / Rarely

1. Apple
2. Banana
3. Orange
4. Pomegranate
5. Grapes
6. Any other

VII. How often do you take these fleshy Foods :-

Daily / Twice in a Week / Weekly / Rarely

1. Meat
2. Poultry
3. Fish
4. Eggs
5. Any other

VIII. Water habits of girls:-

1. Boiled and filtered water
2. Un boiled and Un filtered water

Research Students

Supervisor

RESEARCH ADVISORY COMMITTEE

SNM GDC, NARAYANPET
Academic Year, 2021-2022

(Dr. Md. Riyaz Khan)
Research Supervisor

Approved by :

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(Dr. Mercy Vasantha)

Jignasa Coordinator : _____
(Dr. Md. Riyaz Khan)

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4. _____
(M. Uday Kumar)

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(Dr. Md. Riyaz Khan)