International Journal of Recent Development in Engineering and Technology
Website: www.ijrdet.com (ISSN 2347-6435 (Online) Volume 15, Issue 06, June 2026)

A Comparative Study of Dietary Intake and its Relation to the Nutritional Status of Early Adolescent Girls in Kolhapur and Sangli City

Dr. Susmita Sadashiv Durgule
Department: Home Science, Smt. C. B. Shah Mahila Mahavidyalaya, Sangli, Maharashtra, India

I. Introduction

Early adolescence is the second critical period of life in human beings with rapid physical growth, changes in body composition, physiology and endocrine. Rapid physical growth and changes in body composition heighten their nutritional requirements to avoid risk of under nutrition (Nurul Alam et. al.2010). In Adolescence, girls have a rapid increase in both muscle mass and blood volume. The menstruation adds nutrient burden so it is important in adolescence to get proper food and good nutrition essential for survival, physical growth, mental development, performance and productivity, health and well being of adolescents' girls. early adolescent period following the pre-adolescent period is ranging from 13-15 years. The current nutritional status of early adolescent girls will decide the well being of the present as well as the future generations.

Adolescence girls tend to reduce their physical activity in preadolescence and may receive inadequate nutrition from diets that often lack important nutrients, such as iron. This environmental impact in turn affects physical development of a female. According to Charlene Ottevareet. al. (2011) adolescents have poor dietary habits, which are characterized by a high consumption of sweets and soft drinks, breakfast skipping and a low consumption of fruits and vegetables. An adolescent girl becomes finicky about the

food she eats. Sometimes a high calorie diet still has nutritional deficiencies, especially if the diet includes large amounts of carbohydrates and sugar. Typically high calories intake leads to obesity, low energy level, heart disorder, hypo nutrition, and susceptibility to disease. Malnutrition may occur in an adolescent who looks reasonably healthy. It may result from excessive intakes of starchy foods. Adolescence is a highly demanding period to meet rapid growth. Protein, Iron and calcium are important for growth, spurt and skeletal development in adolescence

II. Objective Of The Study

1. To assess the physical growth of the selected adolescent girls.
2. To evaluate the nutrition status of selected adolescence girls.
3. To give scientific information to adolescent girls on nutrition.

III. Material And Method

The selected sample comprised of early adolescents girls belonging to the age group of 13- 15 years. A total sample of 100 adolescent's girls was selected randomly from secondary school of Sangli and Kolhapur City. Food and nutrient intake of the adolescent's girls was assessed by three days recall method for this study.

A survey was carried out to find out the socio-economic background, health and hygienic conditions of selected population throughout Kolhapur and Sangli city. A combination of anthropometry, dietary assessment and clinical examination was used for assessing the nutritional status of early Adolescent's girls at Sangli and Kolhapur urban.

IV. Result

According to age calories requirement 70% calories should be meet by carbohydrate rich food and according to 70% calories 360.50gm carbohydrates should be include in the early adolescents girls diet. 84% adolescent from both cities adolescent couldn't met minimum requirement of carbohydrate from their daily diet. It is due to skipping breakfast and wrong eating habits of adolescents. Lack of nutrition knowledge in adolescent and their parents is dose bad impact on their diet. It is necessary to fulfill the requirement of carbohydrate for adolescent's overall growth and good health condition. According to RDA the daily requirement of protein is 65gm/day for early adolescent. It is seen that 100% adolescent couldn't meet their daily protein requirement from both cities adolescent girls. It is observe that the diet of adolescent girls from both cities were deficient due to lack of high quality protein in their diet. It is necessary to include the high bio-quality protein food in adolescent diet, for Hemoglobin in formation and overall growth.

The RDA for fat is 22gm/day for early adolescent girls. Only 8% Sangli adolescent and 1.6% adolescent from Kolhapur has minimum amount of fat in their daily diet. Rest of participant adolescent from both cities has high amount of fat in their daily diet. This will do adverse effect on adolescent's growth and health. Due to eating oily and junk food the intake of fat is raise. It is necessary to give knowledge about nutrition and health to the early adolescents for their future health. The intake of calories from both cities adolescent girls, only 7.33% from sangli and 10% from participant adolescent girls get the sufficient amount of calories from their diet according to recommended daily allowance (RDA) for energy. Rest of adolescent from both cities cannot meet their daily requirement of calories in sufficient amount. There is no much difference in intake of calories in both cities adolescent diet. The RDA amount of iron is 28mg/day for early adolescent girls. Iron intake of adolescent girls from both cites which is very below than RDA. It is very serious matter according to adolescent girl's health and prevalence of anemia. Other factors such as low vitamin C intakes and some aspects of lifestyle such as dieting for weight loss or inexperienced adoption of vegetarian diets were associated with increased health risk. Increasing fruit and vegetable consumption were in a diet as a means of increasing fiber and antioxidant. The RDA for calcium for early adolescent girls is 600mg/day. 66.66% adolescent from sangli and 74.32% from Kolhapur adolescent does met the daily requirement of calcium sufficiently. Below the 10% recommendation of calcium 9% from sangli and 5% from Kolhapur, below the 20% recommendation 27% from Sangli and 28.66% from Kolhapur and below the 30% recommendation 20.66% from sangli and 30% Kolhapur adolescent girls were found. Rest of adolescent from Sangli 33.2% and 24.4% from Kolhapur fulfills their calcium requirement above RDA. The RDA for beta-carotene is 2400mcg for early adolescent girls. But data shows that the consumption of beta-carotene from both cities participant adolescent is below the recommendation. Which is develops very sever health problem in adolescent girls. Mainly the adverse effects were on cognitive function, development of RBC and resistant power with the eyes problems in the adolescent girls. The RDA for vitamin 'B1' is 1.0mg/day for early adolescent girls. Only 11% adolescent girls from both cities couldn't meet the daily requirement of vitamin 'B1'. The source of the requirement of vitamin 'B1' is only cereals. Which is very liberal amount in both cities adolescents diet. The daily requirement of vitamin 'B2' is 1.2mg/day. 11% adolescent from Sangli and 16.66% adolescent from Kolhapur don't meet their requirement of vitamin 'B2'.

Rest of adolescent from both cities fulfills their requirement from cereals consumption. The RDA for vitamin 'B3' is 14mg/day for adolescent girls. According to this table it is seen that only 2% from Kolhapur adolescent fulfill their requirement and rest of adolescent from both cities couldn't fulfill their requirement of vitamin 'B3". Due absent of non-veg. origin food from both cities adolescents diet they couldn't meet their daily requirement of vitamin 'B3'. Vitamin 'C' is iron enhancing food and makes strong resistant power. According to RDA the requirement of vitamin 'C' is 40mg/day for early adolescent girls. Bur it is found that 100% adolescent from both cities couldn't meet their daily requirement of vitamin 'C'. Because of very low consumption of fruits and vegetables found in both cities adolescents in daily diets.

V. Conclusion

It is observed from the data mean intake of carbohydrates and protein is lower than RDA for early adolescent girls from both cities. It means both cities adolescent girls couldn't fulfill their daily energy requirement and it is seen that their diet was severely deficient in protein rich food, nearly half of the requirement they fulfill from their diet. Reflection of deficiency saw in adolescent as stunted growth. The mean intake of other micronutrient also less than RDA in their daily diet, which dose curses impact on their growth and development. It is observed that fat and vitamin B2 was in sufficient amount in daily diet of both cities adolescent girls. Fruit and vegetables are mostly absent from both cities adolescents' diet.A major basic nutrient which is helpful in making hemoglobin were protein, iron and vitamin C are found absent in the daily diet of these adolescent girls. Skipping breakfast was most bad habit was seen in both cities adolescent girls. It is evident from the finding that early adolescent girls from both cities did not reach optimal height and weight for age. The observation from the finding was that a higher percent of adolescent girls have height from Sangli 74% and from Kolhapur 70% girls have <90 percent of standard height. The influence of malnutrition was seen on their stunted growth from both cities adolescence girls. Majority of adolescences girls were from both cities <80 percent of standard weight. 34% adolescent from Sangli and 33% adolescent from Kolhapur are at normal weight level. The findings as related to weight for age according to NCHS malnutrition grade that majority of girls have low weight for age from both cities. Weight is an indicator of current malnutrition. Low food and nutrient intakes associated with malnutrition and directly influence the weight status.

50% adolescent from both cities are stunted growth and 65%adolescent from both cities has below the required weight for age.70% adolescent from both cities are below the normal level of BMI.

REFERENCES

[1] Alam Nurul, Roy Swapan Kumar, Ahmed Tahmeed and Ahmed A.M. Shamsir. (2010) "Nutritional Status, Dietary Intake and Relevant Knowledge of Adolescent Girls in Rural Bangladesh." Journal of Health, Population and Nutrition, 28(1), pp 86-94.

[2] Gaiki Varun and Wagh vasant (2014) "Nutritional Status of Adolescent Girls from Selected Rural Area of a District from Central India." Innovative journal of medical and health science. 4(2), pp 90–92.

[3] Khan, M. R., and Ahmed Faruk (2005) "Physical Status, Nutrient Intake and Dietary Pattern of Adolescent Female Factory Workers in Urban Bangladesh." Asia Pacific Journal of clinical Nutrition 14(1). pp 19–16.

[4] Kusuma D. L., (2001). Profile of Nutrition of Rural Adolescent Girls, I st Edition, Discovery Publishing House, New Delhi. Pp 87-218.

[5] Stang Jamie (2002) "Assessment of Nutritional Status and Motivation to Make Behavior Changes among Adolescents." Journal of the American Dietetic Association, suppl, Adolescent Nutrition: A SpringBoard for Health. 102(3), pp S13–S22. doi:10.1016/s0002-8223(02)90417-7.

[6] Venkaian K., Damayanti K., Nayak MU. And Vijayaraghavan K. (2002) "Diet and Nutritional Status of Rural Adolescents in India." European Journal of Clinical Nutrition. 56, pp1119-1125. doi: 10.1038/sj.ejcn.1601457.