

Dietary intake and its consumption pattern of adolescents girls: An assessment of adolescent beneficiaries of SABLA/SAG scheme

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■ **ABSTRACT** : Nutritional requirements peak during adolescence and, in absolute terms, are higher than at any other stage of life. Malnutrition at this stage leads to stunting of growth, repeated infections and places constraints on full physical and psychological development. The current nutritional status of the population reflects the lack of progress over time, despite a number of national level programmes and policies. **Objective:** The main objective of the research study were to assess the dietary intake and pattern and their Nutritional status of non-school going and school going AGLs the age group of 11-14 yrs, enrolled at AWCs under SABLA Scheme of Banka District. **Method:** For this study, Anthropometry measurement, 24h dietary recall method including Take Home Ration of SABLA programme, SABLA Kishori Card Observation and Questionnaire method as tools were used. **Result:** The obtained data explains that dietary intake of both major groups was not satisfactory within the Kcal of 1500-2000, 10% Adolescent Girls were fortunate enough to get their diet according to RDA. No any remarkable differences have been found in the dietary intake of school going and non-school going girls in both groups *i.e.* 11-14 and 14-18 years of Adolescents girls. The Dietary intake and pattern were found the same. the findings on the nutrition intake especially in micronutrients make it obvious that there was no difference in nutrition intake of both the major groups *i.e.* School going and Non-school going AGLs. Actually, speaking more than 70% AGLs of the both the group were not getting sufficient amount of macro and micro nutrition. most significant food stuff for vulnerable group of adolescent age – the consumption of Pulses, GLF, Milk, Fruit, Egg/Meat/ Fish, was very poor. As we know the fact how valuable these food stuffs are for the physical and mental development of the AGLs.

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Adolescence is a nutritionally vulnerable time when rapid physical growth increases nutrient demands. Dietary behaviours established in adolescence may contribute to nutrition-related problems that have consequences for long-term health. Adolescence provides an opportunity to correct nutritional deficiencies that may have occurred in early life and to catch-up on growth, and to establish good dietary behaviours.

Nutritional requirements peak during adolescence and, in absolute terms, are higher than at any other stage of life. Malnutrition at this stage leads to stunting of growth, repeated infections and places constraints on full physical and psychological development. The current nutritional status of the population reflects the lack of progress over time, despite a number of national level programmes and policies.

Nutrition constitutes the foundation for human development by reducing susceptibility to infections, reducing the related morbidity, disability and mortality burden and enhancing cumulative lifelong learning capacities and adult productivity (Planning Commission, Twelfth Five Year Plan 2012–2017 Government of India). The state of nutrition among young children, women, and men in India is of concern. Despite a number of national level programmes and policies, current nutrition status reflects the lack of progress over time. Nutritional status is based on specific indicators like height and weight, anaemia, iodization of household cooking salt, utilization of nutrition programmes, information on child feeding practices and vitamin A supplementation (Arnold *et al.*, 2009). Deficiencies of micronutrients continue to impose a substantial health, economic, and social burden worldwide. Globally 60%–80% of adolescents suffer from micronutrient deficiencies. Fluctuations in the status of one or more micronutrients may reasonably be expected to alter the metabolism of the other, particularly in adolescents (Shashi *et al.*, 2012). Additionally, India being in a state of nutritional transition is facing the dual burden of malnutrition along with emerging problems of overnutrition and obesity. The government has put in place a number of programmes and policies aimed at improving nutritional status among adolescents, specifically the girls. Various programmes are implemented by the Ministry of Women and Child Development, Ministry of Health and Family Welfare, the Department of School Education and Literacy (under

Ministry of Human Resource Development), and the Ministry of Youth Affairs and Sports. The National Nutrition Policy 1993 was instrumental in setting nutrition goals to control and prevent malnutrition in the country. The policy sought to create a balance between the short-term direct nutrition interventions and long-term institutional/structural changes to improve the nutritional status for all sections of the society. To give due importance to nutrition among adolescent girls, Kishori Shakti Yojana (KSY) – part of the Integrated Child Development Services (ICDS) programme – was rolled out in 2000. With a focus on girls who are school dropouts (11–18 year olds), KSY provides take-home rations, health package, and non formal education, along with home-based and vocational skills development (ICDS and Planning Commission, 2011). In addition to KSY, the government of India started the Nutrition Programme for Adolescent Girls (NPAG) in 2002 in 51 districts for adolescent girls and pregnant/lactating women. All adolescent girls in the district were weighed once in three months to identify girls who weighed less than 35 kg and provided free of cost 6 kg of food grains per month for the next three months. In 2010 the Ministry of Women and Child Development rolled out the Rajiv Gandhi Scheme for Empowerment of Adolescent Girls (RGSEAG) – the SABLA programme to provide supplementary nutrition to adolescent girls (11–18 years). This scheme merged the KSY and NPAG in order to address the multidimensional needs of the adolescent girls. Out-of-school girls are also provided two adult Iron Folic Acid tablets per week along with nutrition and health education (Implementation Guidelines for SABLA Programme, Ministry of Women and Child Development 2010). The Mid-Day Meal Scheme, run by the Department of School Education and Literacy, started in 1995 and revised in 2001 provides young people (9–14-year-old from classes 1–8 in government and aided schools and Education Guarantee Scheme (EGS)/Alternative and Innovative Education (AIE) centres) a cooked mid-day meal where 300 calories and 8–12 g of protein is provided.

Poor nutrition is more common among rural areas and large families with uneducated or unskilled parents from lower-income households. With changing diets and physical activity levels, overweight and obesity are also emerging problems, particularly among urban residents and wealthier households. The consumption of processed

foods high in fat and sugar is rising, and adolescents and adults are becoming increasingly sedentary. Overweight and obesity in adolescent girls is associated with obesity in adult women, which increases the risk of diabetes, hypertension and infant overweight and obesity.

Young girls who have inadequate nutrition do not grow well and become stunted women. Adolescent girls often suffer from anaemia because of poor consumption of iron rich foods and also due to worm infestation and frequent infections. Because of severe malnutrition and repeated illness, the growth spurt in early adolescence does not occur and a slower and prolonged pubertal growth period is seen in adolescents from lower socio-economic status. Hence, any damage to the body physiology during adolescence, which places extra nutritional demand on the body, like early pregnancy, is detrimental as growth this still to be attained. Adolescent mothers are more likely to deliver low birth babies. Due to poor milk production the infant may not be able to gain enough weight and remain malnourished. If these babies are girls, they are likely to continue the cycle by being stunted in adulthood, and so on, if something is not done to break this cycle. Support is needed for nutrition at all stages - infancy, childhood, adolescence and adulthood.

Objectives:

The Adolescents Girl of this age are full of energy if their nutritional requirement is fulfilled in proper way. But unfortunately, significant proportions of under nourished AGLs live in such poor economic and social condition which impedes to AGL's physical and mental development. These conditions include poverty poor sanitation, disease, infection, inadequate health care and poor feeding practices.

The main objective of the research study were to assess the dietary intake and pattern and their Nutritional status of non-school going and school going AGLs the age group of 11-14 yrs, enrolled at AWCs under SABLA Scheme of Banka district.

RESEARCH METHODS

The cross-sectional study was carried out using both Qualitative and Quantitative instruments. Total 600 Adolescents girl selected for this research study in which 300 school going and 300 non-school going girls were randomly selected. The quantitative instrument was used

to collect the information on Demographic Profile of the respondents, Dietary Intake and Pattern of the AGLs and Anthropometric Parameters, Clinical Investigation. The qualitative instrument was used to understand the service and system of the Supplementary Nutrition of the SABLA. The Information was collected by a pre-designed and pre-tested questionnaire developed for this purpose taking account of in-depth information to achieve the research objectives. For the assessment of Food and Nutrition adequacy a questionnaire was developed. Diet frequency, adequacy and type of diet by 24-hour recall method were used. The method was asked about the diet of AGLs to obtain the accurate data. Then the data obtained was calculated, analyzed and compared to RDA. The collected data was analysed by using standard percentile technique and statistical method.

RESEARCH FINDINGS AND DISCUSSION

The result of the present study has been analysed and presented under the following heads with figure and graph.

Dietary intake and pattern:

For the assessment of dietary intake and their consumption of diet pattern Diet frequency, adequacy and type of diet by 24-hour recall method were used and compared to RDA. Kamla Krishnaswamy, RDA, NIN, ICMR (2011).

It is obvious from the and Fig. 1 that only 8% beneficiary AGLs were getting 2500-3000 Kcal, which is nearer to RDA and meagre 10% beneficiary Adolescent Girls and 2% AGLs get exactly RDA, which is >3000 Kcal. 31% baneficiary AGLs were getting the calories between the 2000-2500 and 38% Adolescent Girls were getting the calories between 1500-2000k/Cal which was highest calories getting group, and rest of the AGLs were far below the RDA *i.e.* <1500 Kcal.

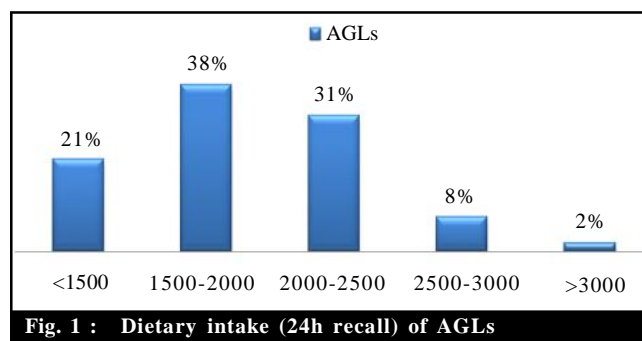


Fig. 1 : Dietary intake (24h recall) of AGLs

The obtained data explains that dietary intake of both major groups was not satisfactory within the Kcal of 1500-2000, 10% Adolescent Girls were fortunate enough to get their diet according to RDA. No any remarkable differences have been found in the dietary intake of school going and non-school going girls in both groups *i.e.* 11-14 and 14-18 years of Adolescents girls. The Dietary intake and pattern were found the same.

The Fig. 2 shows that important micro nutrient essential for the Adolescent age girl was not available in a recommended amount for the enrolled AGLs of SABLA Scheme of ICDS. When the intake of protein supplementation in daily food habit was calculated, it was found that only 32 % AGLs getting 40.5-5.5 g/d *i.e.* RDA of AGLs, whereas only 36% AGLs were getting recommended amount of visible fat *i.e.* 35g/day. As for as Calcium intake is concerned, only 37.5% beneficiary AGLs are getting required RDA, *i.e.* 800mg/day, whereas the Iron and Zinc intake of girls was far behind the RDA, in which Iron and Zinc intake of AGLs is 24.83% and 26.66% girls were 27mg and 12mg/day, respectively.

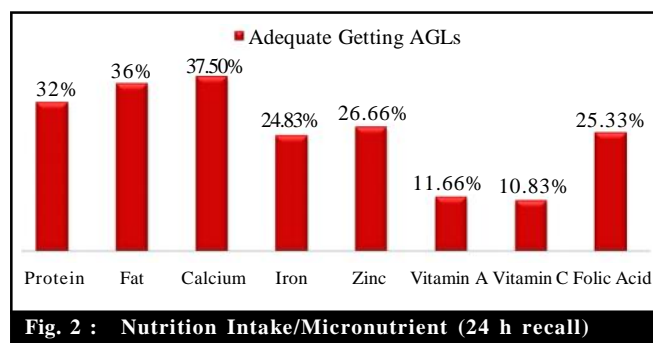


Fig. 2 : Nutrition Intake/Micronutrient (24 h recall)

As far as consumption of Vitamin A is concerned only 11.66% beneficiary AGLs were consuming according to the RDA *i.e.* 4800mcg (β -carotene and 600mcg in form of retinol). It is to be remind that a meagre no. of AGLs were having non vegetarian diet and that also weekly or once in a month and so the main source of the vitamin A is consumed β -carotene. The Fig. 2 shows that Vitamin C intake was also very poor because only 10.83% Adolescents girls were getting Vitamin C according to RDA *i.e.* 40mg/day which is very essential micronutrient for absorption of iron in metabolism process in the body.

Thus the findings on the nutrition intake especially in micronutrients make it obvious that there was no difference in nutrition intake of both the major groups

i.e. School going and non school going AGLs. Actually speaking more than 70% AGLs of the both the group were not getting sufficient amount of macro and micro nutrition. Therefore, there is no question of being superior or inferior. Definitely the result does not support the hypothesis that nutrition intake of school going girls would be better than non-school going AGLs. In general the nutrition intake is measurable. Micronutrients are essential for the proper development of adolescent girls, unfortunately it is not fulfilled in their daily dietary intake.

In Fig. 3 make it clear that supplementary nutrition provided at AWCS was behind the recommended norms of SABLA Scheme of ICDS. It can be seen that 68 per cent AGLs of SABLA were getting <400 Kcal, whereas 31 per cent were getting 400-500 Kcal, only 1 per cent AGLs got according to recommended norms *i.e.* 600 Kcal/day in a 300 days of one year.

When the data on a significant nutrient protein is observed it is clear that only 2% AGLs were getting 20g protein which is adequate to recommended norms of SABLA in a day, 46% AGLs were getting protein near to norms *i.e.* 15-20g/d whereas more than 50% of AGLs (52%) found, 15g/d. The recommended daily dietary intakes of protein for adolescent girls are 40-55g/d.

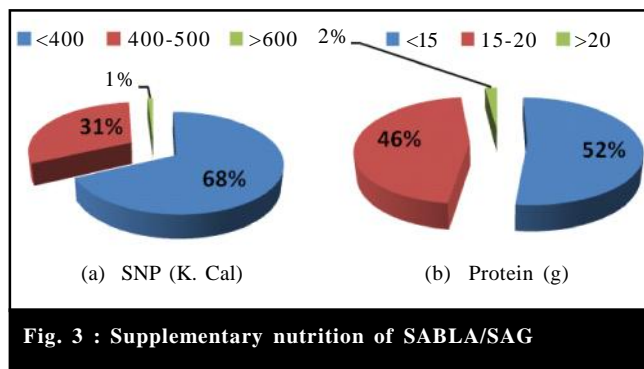


Fig. 3 : Supplementary nutrition of SABLA/SAG

On the basis of the findings it may be said that most of the AGLs were neither getting adequate SNP nor the recommended amount of protein according to the norms of SABLA Scheme of ICDS in one time. The SNP was given by AWC under the SABLA Scheme for enrolled AGLs in a form of Take Home Ration (THR) *i.e.* raw rice, pulses, soyabean bari in a month. The norm of supplementary nutrition of SABLA Scheme for the AGLs is 600k/cal with protein 20g/day, which is cost of 5 Rs./day for each AGL. When the AWW was asked regarding the distribution of THR lower than the norms

of scheme, they told that the cost of recommend amount of THR are much higher as compare to price provided for raw food items like Rice, Pulses and Soybean provided by the scheme.

The Fig. 4 made on Acceptance of SNP indicate that more than half (56%) AGLs were accepting the SNP in the form of THR. Whereas the 42% AGLs had shown the partial acceptance. Only 2% AGLs did not show their acceptance at all for SNP provided to them. This makes it clear that the Take Home Ration which is served at AWCs generally is not suited their quality, but their hunger need is so crucial that they do not reject THR and accept it unwillingly.

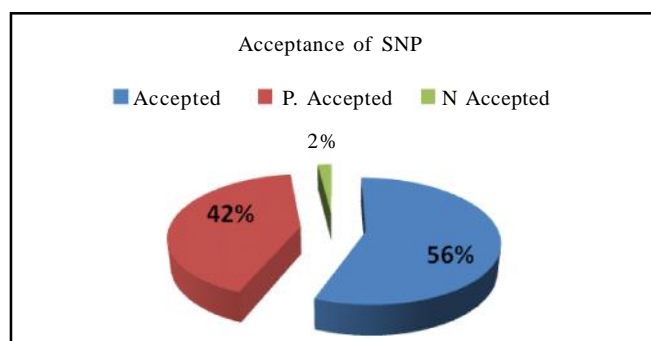


Fig. 4 : Acceptance of supplementary nutrition by AGLs

Drinking water, environment and sanitation:

The researcher tried to obtain the data on drinking water facility at AWCs and observed the environment

and sanitation of the AWCs. All the centres visited by the researcher, tell the same story *i.e.* none of the visited centre had the pure drinking water facility of their own. The AWHs fetch the water in bucket or a container from any nearby hand pump, supply water or tube well. Mostly AGLs were also asked to bring water from nearby place. As far as sanitation and environment is concerned, most of the AWCs were found to have poor sanitation and unhealthy environment. This is not suitable for proper growth of the AGLs.

Fig. 5 show the consumption of staple food stuff and their frequency. The maximum no. of AGLs 49% were eating *Bhat* (parboiled Rice) twice daily, 39% took *Bhat* thrice daily and 4% were once daily. Surprisingly 08% AGLs were consuming this 4 times in a day. As the consumption of *Roti* is concerned 38% Adolescent girls consumed this once daily preferably at night, 15% AGLs took this twice a day and only 02% AGLs ate *Roti* thrice in a day. *Sattu* is consumed by 06% AGLs once daily and only by 12% AGLs twice in a day. Rest 92% do not eat *Sattu*. *Mudhi* and *Chuda* (flaked Rice and puffed Rice) were consumed by maximum 58% respondents, particularly as evening snacks, whereas 9% adolescent girls took it twice in a day. Unfortunately, 03% AGLs were consuming *Basi bhat* or *Roti* (Night cooked Rice and *Roti*) once daily. The findings indicate that *Bhat* (*Basi* or *Taza*) is the main diet of the school going and non school going adolescent girls, then comes *Roti* Snacks

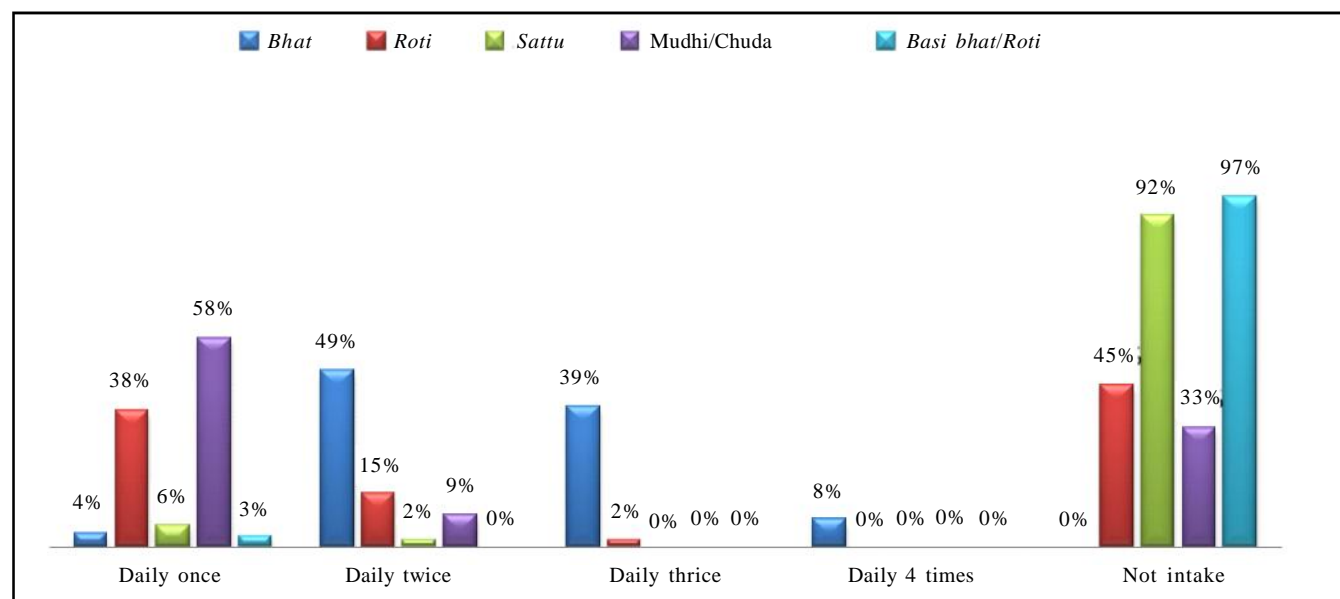


Fig. 5 : Consumption of staple food stuff and their frequency

like Mudhi and Chuda have third position. Thus *Sattu* is far behind.

Fig. 6 represents the pattern of dietary consumption by AGLs. Out of 600 beneficiary adolescent girls Pulse was consumed daily by only 13 per cent AGLs whereas 59 per cent AGLs were getting the Pulse twice or thrice in a week 28 per cent beneficiary AGLs took the pulse weekly.

The score of Green/Green leafy Vegetable consumption shows that very few *i.e.* Only 32 per cent adolescent girls consumed GLF daily. Half of AGLs *i.e.* 50 per cent consumed GLF 2-3 days in a week and 18 per cent weekly. Green leafy vegetable is essential for the development for adolescent age because it is a good source for the micronutrient specially calcium, iron, folic acid and other minerals and vitamins.

The data of consumption of milk shows that only 01 per cent beneficiary AGLs were getting the milk daily. 02 per cent AGLs got the milk twice or thrice in a week, whereas 8 per cent adolescent girl get this weekly. 24 per cent AGLs took the milk once in a month. Surprisingly maximum no. of AGLs were not fortunate to get even a drop of milk ever, which is essential for proper development because it is a very good source of calcium and protein.

The score of Fruit consumption indicates that none of the AGLs consumed the fruit daily or 2-3 days in a week. Only 2 per cent beneficiary adolescent girls got a fruit weekly whereas 9 per cent AGLs got the fruit once in a month. Maximum no. 89 per cent adolescent girls were unfortunate who were not getting any fruit ever.

As the consumption or availability of non-vegetarian food is concerned not a single AGLs in either group was getting egg/meat/fish daily. 1 per cent AGLs got 2 or 3 times in a week. Only 6 per cent AGLs get it weekly and 26 per cent adolescent girls get it monthly. Maximum 67 per cent AGLs were not getting any non-vegetarian food. When the data on dietary pattern was assessed, the researcher found that the percentage of non-vegetarians in the muslim community were more than hindu community.

The data on consumption of chocolates and biscuit shows that 03 per cent AGLs consumed it daily, 22 per cent AGLs consume it twice or thrice in a week, 43 per cent adolescent girls took it weekly, whereas 32 per cent adolescent girls got it monthly.

As the pattern of dietary intake consumption have been shown by the data of Fig. 6, it may be analysed in the way that most significant food stuff for vulnerable group of adolescent age – the consumption of Pulses, GLF, Milk, Fruit, Egg/Meat/Fish, was very poor. As we know the fact how valuable these food stuffs are for the physical and mental development of the AGLs.

Conclusion:

The findings of the present study of Dietary Intake and its consumption pattern of Adolescents Girls show that more than ¾ AGLs were not getting full diet compared to RDA. The dietary intake of both major groups was not satisfactory, 10 per cent Adolescent Girls were fortunate enough to get their diet according to RDA. No any remarkable differences have been found in the

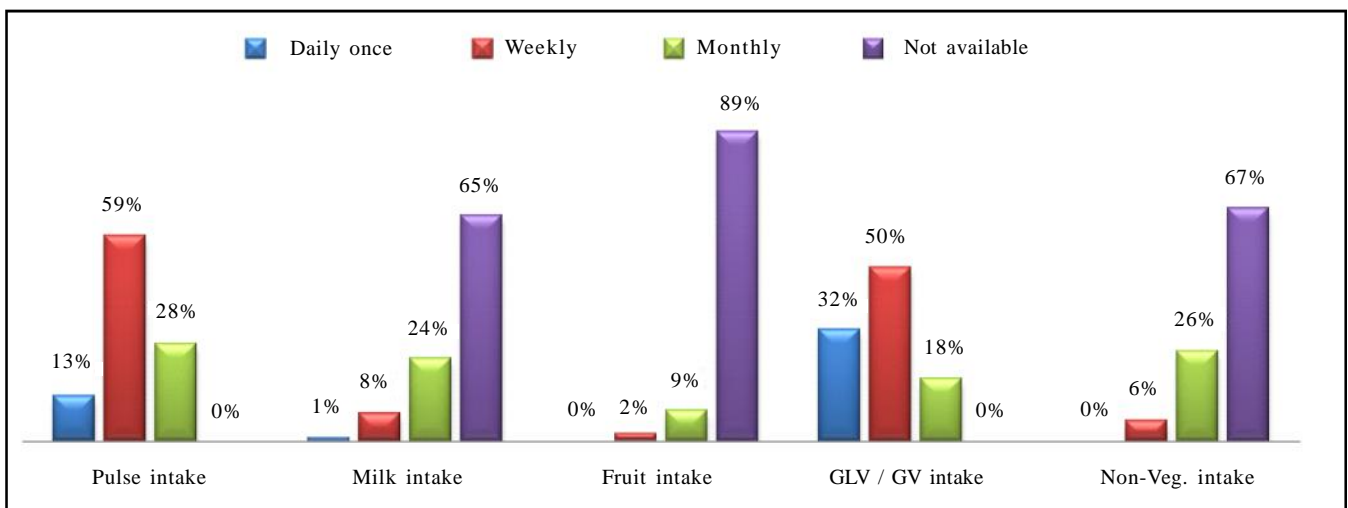


Fig. 6 : Pattern of dietary consumption

dietary intake of school going and non-school going girls in both groups *i.e.* 11-14 and 14-18 years of Adolescents girls. The Dietary intake and pattern were found the same. It is necessary for a teenager to have a balanced diet for his normal growth. Under this research, it has been found that adequate amount of carbohydrate is not available in the food, while protein-based diet, minerals and vitamins-based food was also not getting enough. Supplements given as THR by the ICDS under SABLA/SAG Scheme were not able to meet their nutritional needs. In their study of the pattern of eating, it was found that even though some nutritious foods were available, they were not in their eating habits like the inclusion of green vegetables in the food. According to research finding, there is a need for behavioural change towards food habits with awareness of balanced foods in daily diet for better health of adolescent girls.

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■ REFERENCES

Adolescents in India: A desk review of existing evidence and behaviours, programmes, and policies © United Nations Children's Fund (UNICEF) November 2013

Adolescent Girls in India Choose a Better Future: An Impact Assessment, The Centre for Development and Population Activities, CEDPA 2001.

Bamji, S. Mehtab *et al.* (2009). Health policy programme in India, A Textbook of Human.

Bhaskaracharya, K., Sudharshan Rao *et al.* (2008). Methodology for the food intake assessment Practical Dietetics, Indian Dietetic Association, A. P. Chapter, Hyderabad,

p. 48-57.

Chandra, Shailaja (2012). India's health issues and challenges, Health and Nutrition. J. Development, Yojna, Oct. 2012 p 4-8.

Deepika Anand and Anuradha, R.K. (2016). Malnutrition Status of Adolescent Girls in India: A Need for the Hour. *Internat. J. Sci. & Res.*, 5 (3) : 642-646.

Ekbote, Veena and Khadikr, Vaman (2010). Dietary Pattern and the Risk of Malnutrition in children and Adolescents, Hirabai cowasji Jahagir Medical Research Institute Pune, Abstract Book of, NC, IDA, 2010, p-82.

Evaluation of SABLA Scheme: A Report Submitted to Ministry of Women and Child Development, Government of India, Administrative Staff College of India. September 2013.

Global Hunger Index 2011: Combating hunger in a world, Available from www.ifpri.org/ghi11.pdf/ accessed on March November 2011.

Gopalan C. *et al.* (2004). Nutritive Value of Indian Foods, National Institute of Nutrition (NIN) ICMR, 2004, p-47-90.

Govt. of India, Ministry of women and child development, Child Development, Annual Report 2011-12, Available from, http://www.wcd.nic.in/publication/AR_201213_english_pdf/ accessed on August, 2013.

Laxmaiah, A. and Mallikaarjuna, K. Assessment of Nutritional status of the Community,

National Health Family Survey (NFHS)-4(2005-16), Nutrition in India, International Institute of Population Science (IIPS) Mumbai, Ministry of Health and Family Welfare, Govt. of India, August 2016, Available from, http://www.rchiips.org/nfhs/sub_report/shtml, assessed on June 2016.

Srilakshmi, B. (2008). Nutritional and food requirement for Adolescents, Dietetics, p-44-63.

Vijyan, M. (2009). Nutrition Security for India-Issue and way forward, A Position Paper, December 2009, Indian National Science Academy (INSA), New Delhi, p-5-6.

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