Nutritional Status of Adolescent Girls: A Study of Slum Dwellers of Surat City

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Abstract

Adolescent girls are backbone of healthy and progressive family and they are future builders of healthy community. Nutritional status of adolescent girl is valuable in attaining healthy reproductive outcome. A community based cross sectional study was carried out primarily to determine the nutritional status of adolescent girls in the age group of 11-18 years living in urban slum from Surat city. The study is comprised of (n=96) adolescent girls. The primary data was collected through structured questionnaire, using Anthropometric measurements (height and weight) and Focus Group Discussion. The findings of the study revealed that there is poor dietary habits among girls. Analysis of Anthropometric measurements revealed more malnourished status among the respondents and implied the gap in perception of girls' on their nutritional status. Study expresses need for consideration of feedback of beneficiaries in providing Purna Shakti Atta and Iron tablets to adolescent girls of slum area under Supplementary Nutrition Programme (SNP).The paper ends with recommendations to combat multi factorial malnutrition problem.

Key words: Malnutrition, Adolescence, Stunting, Wasting, Underweight, BMI Index

Introduction:

India stands at 102 ranked out of 117 countries on Global Hunger Index (GHI) 2019 with a score of 30.3. It indicates that India suffers from a serious level of hunger. The GHI score incorporates four component indicators: undernourishment, child wasting, child stunting, and child mortality.

According to World Health Organization (WHO-2018), Malnutrition refers to deficiencies, excesses or imbalances in a person's intake of energy and/or nutrients. The

term malnutrition covers two broad groups of conditions. One is 'under nutrition'—which includes stunting (low height for age), wasting (low weight for height), underweight (low weight for age) and micronutrient deficiencies or insufficiencies (a lack of important vitamins and minerals).22.2% of children globally are stunted children (aged 0–59 months), 7.5% are wasted children, and 5.6%children are over weight. It is further estimated that nearly half of all deaths in children less than 5 years of age in developing countries could be attributed to under-nutrition. Under-nutrition, is a major health problem affecting the development of children in many low and middle income countries.

In India, under nutrition accounts for 45% of children under-5years of age, hence, mortality alone and remains a key public health challenge in India. According to the NFHS-4, 38 % children in the Gujarat state are stunted, 26 % are wasted, 39 % are underweight and 9.5 % are severely wasted.There was hardly any difference has been observed in the proportion of children (<5 years of age) with wasting between NFHS-3 and NFHS-4; however, there was a reduction in prevalence of stunting by about 10% at the national level. India has unacceptably high levels of stunting, despite marginal improvement over the years.

When we talk about nutritional status among adults, around 1.9 billion adults worldwide are overweight, while 462 million are underweight. 528 million or 29% of women of reproductive age around the world are affected by anaemia, for which approximately half would be amenable to iron supplementation. The nutritional status among adults (NFHS-4) indicates 22.9% and 27.20% of women whose BMI is below normal at India level and Gujarat level respectively. The overview of the data, implies the problem of malnutrition as a significant causative factor for multiple health problems among all age people globally, nationally and locally.

Malnutrition and vulnerability of Adolescence girls:

Adolescent girls are backbone of healthy and progressive family and future builders of healthy community. To attain healthy reproductive outcome, nutritional status of adolescent girl is highly valuable. Globally, adolescents account for around 1.2 billion, about one-fifth of the world's population. WHO has defined Adolescence as the age group of 10-19 years. Adolescence is considered as a nutritionally vulnerable stage and distinguished from other stages of the life cycle with features of rapid growth and development. This period has also been identified as a period of potential interest in correcting nutritional imbalance and insufficient growth from childhood. During this stage, 25% of adult height and up to 50% of adult weight is attained. Both boys and girls grow faster during this stage. It is a crucial

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phase in the life of woman. At this stage, she stands at the threshold of adulthood. This stage is intermediary between childhood and womanhood and it is the most eventful for mental, emotional and psychological well-being. Girls need more protein, iron, and other micronutrients to support the growth spurt to meet the body's increased demand for iron during menstruation. Malnutrition during this stage, poses a variety of threats to women. It weakens women's ability to survive childbirth, makes them more susceptible to infections. It helps them to be productive members of society. Maternal nutrition has direct effects on the health and development of the next generation. Finally, maternal malnutrition's toll on maternal and infant survival stands in the way of countries' work toward key global Sustainable Development Goals (SDG).

For many years, Adolescent girl's health has been neglected because they were considered to be less vulnerable to disease than the young children or the very old. Their health attracted global attention in the last decade only. One-way to break the intergenerational cycle of malnutrition is to improve the nutrition of adolescent girls prior to conception. The Government of India has adopted the most notable, since 1974, the **Integrated Child Development Scheme (ICDS)**to provide a package of services to address the problem of nutrition among children under 5 years of age and primary school students to ensure their holistic development ICDS provides health, nutrition, immunization, preschool education, health and nutrition education, and referral services to young children and their mothers. ICDS also empowers mothers to take better care of their children. The Adolescent Girls (AG) Scheme, implemented by the Ministry of Women and Child Development under Umbrella of ICDS, primarily aims at breaking the inter-generational life-cycle of nutritional and gender disadvantage and providing a supportive environment for self-development. One of the significant scheme is Take Home Ration (THR) under which the adolescent girls are given SNP kit.

Research Methodology:

Objectives: A community based cross sectional empirical study was carried out amongst adolescent girls who are dropped out from the formal education system and registered with Anganwadi in the age group of 11-18 years from Surat city slums. The study had two objectives: (a) To determine the nutritional status of adolescent girls living in urban slums from Surat City. (b) To understand the perception of adolescent girls about receive dservices from Anganwadi.

Methodology: The study is descriptive in nature, comprised of mixed method, qualitative and quantitative method. The multistage stratified sampling method was used and at the final stage volunteer random sampling method was followed. Field study period was from August 2019 to October 2019. The data was collected through structured questionnaire, Anthropometric tools and Focus Group Discussion (FGD) with the girls and Anganwadi Workers. The collected data was analysed through SPSS and content analysis of open-ended questions and FGD.

Universe and Sampling:

Surat city, is the fastest growing city in Asia, Surat Municipality is one of the Oldest Municipality established in 1852 AD. It has total population – 44, 66,826 (2011) and 334 Slum Pockets (2011). The city shows 55.29% recent decadal growth rate and around 37% of the total population reside in slums and slum like areas. The district has Infant Mortality Rate: 17. 98%, Mother's Mortality Rate: 0.46%. Surat is considered to be the city with highest in-migrant population across India. It is known as the fourth fastest growing city of the world. The city is divided in eight Wards/ Zones: West Zone, Central Zone, North Zone, East Zone A& B, South Zone, South West Zone, South East Zone.

As per record, anganwadi started in 1982-83 in Surat district, at present has 1733 Sanctioned and operational Anganwadi (SMC Website). The present study selected Udhana- South Zone –comprised of predominantly residing migrant populationsin this zone. There are 33 anganwadi in the zone, divided in to five main clusters having registration of total 415 adolescent girls. The study is comprised of n=96, (23.13%) adolescent girls from 27 anganwadi from Morarji Vasahat, Prabhu nagar and Vijaya nagar area.

Tools of Data Collection

Three types of data collection tools were used in the present study:

1. **Structured Questionnaire** was divided into three sections namely section I: Contained questions related to socio-demographic characteristics such as education level, age, socio-economic status of parent. Section II: contained questions related to Nine Dietary habit and Section III: enclosed questions related to usefulness of services- Purna Shakti Atta and Iron Tablets – distributed by anganwadi under SNP.

(2) **Anthropometric measurements**: Anthropometric measurements [(height and weight- Body Mass Index – (BMI) -A manual –NIN, pg. 45, Dietary guideline for Indians] was used

to measure BMI. The height was measured using a free standing height measurement scale. The height was recorded up to the nearest of 1 cm when the metallic scale was brought down on the head, pressing the hair and touching the head. The weight of the respondent was recorded with the help of platform spring balance, 0 errors was checked and was measured up to the accuracy of 500 gram and the nearest reading was recorded.

(3) Two different sessions of FGD were carried out, first session was carried out with Anganwadi Workers (n=20). The theme of FGD was to understand workers' perception about girl's response about distribution of Purna Shakti Atta and iron tablets by anganwadi. Second session of FGD was carried out with respondents to understand their perceptions about provided Purna Shakti Atta and Iron tablets.Secondary Data was collected from Udhana Zonal office, Records of anganwadi, SMC web Site, Gujarat Government Records, Census 2011.

Limitations of Study: The present study is being limited to anganwadi from one ward-Udhana Zone only and due to volunteer random sampling method, the findings have very less scope of generalization.

Findings and Interpretations:

I Respondent's Demographic profile:

The study comprised of n= 96 dropped out adolescent girls.

Age: The mean age of the girls was 17.02 years, ranged between 14-18 years. Majority (50%) of the respondents were of 18 years of age.

Education: Majority of the respondents (51%) dropped after 10th standard, followed by dropping after the 8^{th}Standard. The girls shared common reasons for dropping out; either parents did not have money to send them to college or due to failure in exams or they were to go to villages. Almost all the dropped out girls were predominantly engaged in household chores, only 2% of girls were doing with sewing work, supplying Tiffin services etc.

Type of Family: Majority of respondents belonged to nuclear family, those who were from joint family, had their grandparents, uncle and or aunt with them.

Parents' Socio-Economic status:

Education: 62.55 % of mothers were literate, majority of whom completed education till primary level only.35.40 % of mothers were illiterate. Two respondents did not had mothers.

Whereas 79.20 % of fathers were literate out of whom very few completed secondary education till 10th std., 16.70% of fathers were illiterate. Two of the respondents did not have fathers. This data confirms our census data on lower literacy level among women than men.

Occupation: Mostly mothers were house maker and about one third were doing sewing work, jari work etc. in the house. Majority fathers were working with textile markets, very few had self-employed like subjilari, selling things door to door etc.

Income: All the respondents were from the Above Poverty Line (APL) family, the found monthly mean income per family was Rs. 16161, minimum Rs. 1000.00 & maximum Rs. 45000.00 per month. The three income groups were made namely; Lower Income Group comprised of income less than Rs. 10,000/- to up to Rs. 10,000/- per month, Middle Income Group was comprised of income from Rs. 10001 to 30,000/- per month, the income more than Rs. 30,001/- per month complied in to Higher Income Group.

Caste: Majority (37.50%) of girls belonged to OBC, followed by General and ST category 21.90%, 20.80% respectively. Only 16.70% girls belonged to SC category.

The respondents were from the state of Maharashtra, Gujarat, and U P., they used Marathi, Gujarati and Hindi languages in day today communication. Everyone has a Pacca house.

II Dietary Habits: The respondents were asked to tick mark (✔) various food items as per its inclusion in their diet- daily/ weekly/fortnightly/not included at all in diet.

Table 1.1 Dietary Habits among respondents(in percentage):

Food Item	Daily	Weekly	Fortnightly	Not included
Rotali/Rotala	100	-	-	--
Dal-Rice	39.40	**59.40**	-	--
Green Vegetables	**96.90**	3.1	--	--
Salad	13.5	2.1	**78.1**	6.3
Cereals	12.5	25.60	**62.50**	--
Curd	10.40	6.30	**56.30**	**27.10**
Fruits	31.30	**44.80**	24.00	
Non- Veg	--	30.80	**40.80**	28.90
Fast food	8.3	**36.50**	**35.40**	19.80

It can be observed from table 1.1, that almost all the respondents (100%) include Rotali/Rotala with green vegetables (96.90%) in daily diet. Majority of girls included dal – rice (59.40 %) and fruits (44.80%) in weekly diet, whereas majority of girls included cereals (62.50%), salad (78.1%)Curd (56.30) and Non- Veg food item (40.80%) fortnightly. Some girls do not include curd at all. Some girls seemed pure vegetarian and do not include non-veg in their diet at all. 8.3 % of the girls are having fast food daily, whereas 71% of respondents having fast food either weekly or fortnightly, whereas 20% of respondents do not include at all in their diet. The findings implies poor dietary habits among adolescence girls.

III- Services of Anganwadi:

All the respondents had mean years of registration of 8.85 years and Minimum of 2 years and Maximum of 13 years. It seems that girls visit anganwadi regularly. Girls are given Purna Shakti Attawhich is the combination of multigrain with added nutrients. 4th Tuesday of the month is observed as "Anna Vitran Day" (1kg. per week x 4 packets per month). Further the girls are given Iron Tabletson every Wednesday. Anganwadi also does Immunization programme as per schedule.

(a)Use of Atta:

Analysis of data reveals mix feelings about usefulness of Atta among respondents. 85.4% of respondents have said that they are using, and only 14.60% have said that they do not use at all. Further data analysis indicates that those who are using, majority do not like to eat (64.6%) as the taste of Atta is sweet in taste. 38.5 % have tried making new eatable food items; the pala, muthiya, sheera, biscuits, however, they are not able to develop taste of this Atta.

(b) Iron Tablets:

Every Wednesday Iron tablets are distributed to the girls. Girls collect regularly but majority do not prefer to swallow as it causes pain in stomach. The girls do not experience much difference in stamina as an impact of iron tablet.

IV Girls' perception about their level of Nourishment:

Fig. 1.1 Girl's perception about nourishment   Fig. 1.2 Level of Nourishment by BMI
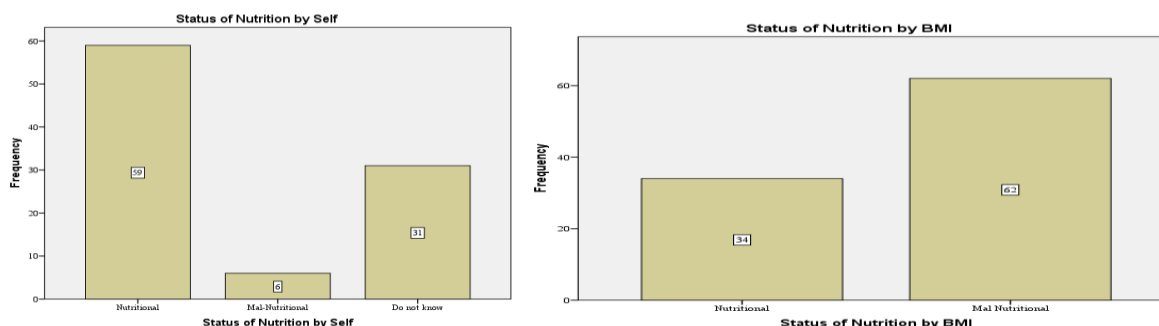
It can be seen from the fig. 1.1 that the majority girls (n=59) perceived themselves as nourished and only n=6 girls perceived themselves as malnourished. Further one third almost n=31 (33%)of the girls were not aware about their nutritional status at all. The fig. 1.2 reveals the opposite picture about nutritional status among respondents. as majority of (n=62) girls found on malnutrition status on BMI, measured through Anthropometric tools. Majority mal nourished girls were found at lower than 18.5 BMI, Only 34 girls were found on nutritional line, out of which majority just stood at little more than 19 and 20on BMI line.

V Correlations:

The cross tabulation of the level of income groups with status of nutrition was done to understand the relationship between two variables. It revealed (tab. 1.2) that higher percentage (40.60%) of mal nutritional status is found among lower income group followed by middle and higher income group. Application of the Pearson chi-square test revealed significant correlations (.000<0.05) between the malnourishment and lower level of Income group. However the study could not establish the same correlation with the nourished respondents with higher income group.

Tab. 1.2 Level of Income and Status of Nutrition by BMI

Level of Income	Status of Nutrition by BMI		Total
	Nourished	Malnourished	
Lower Income Group	8.3% (8)	**40.60% (39)**	49.90% (47)
Middle Income Group	20.8% (20)	14.90% (14)	35.405 (34)
Higher Income Group	6.3% (6)	9.40% (9)	15.60% (15)
Total	35.40% (34)	64.60% (62)	100.00% (96)

The study further looked in to the relationship between category of respondents and status of nutrition, the cross tabulation (tab.1.3)revealed that higher percentage of malnourishment was found among OBC category. On the other side, the much difference has not been observed in status of nourishment among the ST and OBC category (10.40% and 12.50% respectively).

Application of the Pearson chi-square test revealed no significant correlations (.528<0.05) between the status of nutrition and category of respondents.

Tab. 1.3 Category and Status of Nutrition by BMI

Category	Status of Nutrition by BMI		Total
	Nourished	Malnourished	
SC	7.3% (7)	10.40 % (10)	17.70% (17)
ST	10.40% (10)	14.60% (14)	25.00% (24)
OBC	12.50% (12)	**21.90% (21)**	34.40% (33)
General	5.20%(5)	17.70% (17)	22.90%(22)
Total	35.40% (34)	64.60% (62)	100.00% (96)

VI. Awareness about impacts of malnutrition:

Girls were asked- "can mother's malnutrition be a causative factor for Infant Mortality / Mother's Mortality?"All the respondents were found lacking of significant knowledge about malnutrition as a causative factor for death of a mother/a newly born of new born baby at the time of delivery. However, they said that they had heard of death of mother during delivery or death of new born soon after the delivery.

VI. FGD with AWW: The analysis of qualitative data implies that Anganwadi workers seems to   do their duties sincerely in extending the services to beneficiaries. They unanimously said that they have tough time to convince the girls for collecting and using Purna-Shakti Atta, as it has sweet taste which is not liked by girls. They further recommended either to improve the taste of Atta or restart the distribution of previous diet kit which included cereals, oil, wheat etc. AWW also gave illustration of Maharashtra government about distribution of kit to adolescent girls. Further they insisted that our Government of Gujarat need to give Wheat, Cereals, Oil, and Masala which is the most preferred by girls. They also shared that girls are complaining of getting pain in stomach due to taking of iron tablets.

VIII. FGD with Girls: The analysis of the FGD with girls validated the analysis of FGD with AWW and the quantitative findings on use of Atta, dietary habits and taking Iron tablets. The girls shared that they collect Atta from anganwadi, but afterwards they either give it to cattle or throw in dustbin or some of them leave it at anganwadi gate after it closes down. The girls longed to have diet kit which was previously distributed (cereals, pulses, dal, oil wheat,

etc.).Girls also strongly advocated change in sweet taste of Purn Shakti Atta. Majority girls aspired to join vocational training/ classes if it is started in and around their community

Discussions:

The majority girls were passing through late adolescence period- 18 years with malnourished status. Nourished girls were just above the average BMI line where high risk is sensed in deterioration of nourished to malnourished level.

The findings about poor dietary habits of required nutrients during the growth and development period among adolescence girls indicate unawareness about significance of proper dietary habit. The cereals, curd and fruits – a good source of nutrition are not part of the daily diet. However, the having of fast food is observed among respondents. Findings of the present are validated by many other studies that regardless of wealth, school-age children, adolescents and adults are not eating enough foods that promote health such as fruits, vegetables, legumes and whole grains. Lack of right knowledge about consequences of under nutrition leads to ignorance about proper diet and care during pregnancy.

Recommendations:

NFHS-4 data implies even after 35 years of the launch of the ICDS scheme, the problem of under nutrition still continues and the reduction in the prevalence is relatively unimpressive.Government invest lots of fund in providing diet supplement to children, adolescents and women. The present study has directed multidimensional vigorous task required to combat issue of malnutrition among adolescent girls. Therefore, to sustain or enhance the level of Nourishment among adolescent girls various efforts from Micro to Macro level are required;

(a) The findings on usefulness of Atta are very serious indicative of wastage of Atta, and invested fund of government. Hence, as a part of community participatory approach the feedback from beneficiaries should be taken into considered as far as SNP kit is considered.

(b) Small booklet of interesting recipe book can be given to each family to make best use of SNP.

(c) The need for more community based awareness programme about required changes in dietary pattern, significance of Iron tablet in maintaining level of nourishment can

be done through using various means – media, skit, songs, exhibition of posters, seminars etc.

(d) AWW significantly recommended to include adolescent boys under SNP as they are equal contributor in production of future healthy generations.

(e) The present study has widened the scopes of more community based researches to plan out effective strategies at various levels.

Conclusion:

Nutrition is the cornerstone of socio-economic development and that nutritional problems are not just medical problem but multifactorial net working with many other sectors of developments such as education, demography, social and human development at large. Protecting and promoting the health of the adolescent girls is extremely important to reduce the health risks and prevent health problems in adulthood and thus improving the countries' future health. The multi-dimensional determinations are pre-requisite for contributing towards the UN Decade of Action on Nutrition from 2016 to 2025 which aims to catalyse policy commitments that result in measurable action to address all forms of malnutrition.

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