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NUTRITION OF ADOLESCENT GIRLS: A WINDOW TO HEALTHY FUTURE GENERATION

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The nutritional needs of the adolescents are critical for the wellbeing of the society as healthy adolescents open the window of healthy adulthood having skills and efficiency for the development of the economy and the society as well. Adolescent girls, especially are exposed to multiple layers of vulnerability which affects their physical and mental development. Adolescent girls are particularly vulnerable to anemia due to their unique physical and psychological changes that occur during this stage of life.The present study aims to assess the nutritional status of adolescent girls in India and its' associated risk factors so that some strategic interventions can be adopted to minimize this multifaceted problem of nutrition. The available literature and the database of the study reveals that the adolescent generation of the country has been facing the triple challenges of underweight, overweight and obesity. The prevalence of underweight is approximately three times more in rural areas (27.6%) as compared to urban areas (8.6%) which may be attributed to gender bias, more physical strenuous lifestyle and lack of knowledge about adequate calorie requirements among adolescents. There is need of operational research and intersectoral collaborations to address the problems of adolescent girls nutrition in the country.

KEY WORDS: ***Adolescent, Nutrition, Underweight, Future generation***

I.INTRODUCTION

Adolescence is the phase of life between childhood and adulthood, from ages 10 to 19. It is a unique stage of human development and an important time for laying the foundation of good health. Adolescents comprise 16 percent of the total world population (UNICEF,2019). The adolescents experience rapid physical, cognitive and psychological growth in this stage of life. The nutritional needs of the adolescents are critical for the well being of the society as healthy adolescents open the window of healthy adulthood having skills and efficiency for the development of the economy and the society as well. This nutritional deficiency is multifactorial, driven by inadequate iron intake, heavy menstrual bleeding, parasitic infections and socio-economic factors.

India's adolescent population stands at 253 million according to the 2011 Census, and 47 percent of them are girls. India's social, political, and economic development stands on this large number of adolescents who needs to be safe, healthy, educated and equipped with the information and life skills to support the country's continued development. Both adolescent boys and girls in India have issues of nutritional deficiency, lack of access to information and scops for developing life skills. Adolescent girls, especially are exposed to multiple layers of vulnerability which affects their physical and mental development. Adolescent girls are particularly vulnerable to anemia due to their unique physical and psychological changes that occur during this stage of life. The prevalence of anemia among adolescent women in India was 54% in NFHS-4 and increased to 59 percent in NFHS-5. This nutritional deficiency is multifactorial, driven by inadequate iron intake, heavy menstrual bleeding, parasitic infections and socio-economic factors. Moreover, the pubertal timing depends on nutrition during childhood. In adolescence stunting (low height for age) and wasting (low weight for height) delay both overall growth and onset of puberty. In addition, girls born small for gestational age are at risk for insulin resistance, premature pubarche, early menarche and an attenuated growth spurt. Moreover, The high rate of malnutrition in girls not only contributes to increased morbidity and mortality associated with pregnancy and delivery, but also increased risk of delivering low birth-weight babies. This contributes to the intergeneration cycle of malnutrition.

II. REVIEW OF LITERATURE

Adolescence is a critical stage of life characterized by major biological, psychological, emotional and social growth and development. It is the second stage of the life, after infancy in which growth of life accelerates (Das et.al, 2017). The nutritional requirements of the adolescent age is higher than relative to adults as per the speedy growth of height and weight of the earlier (Heslin & McNulty,2023). Progress on adolescent girls' and women's nutrition is too slow and under threat and no region is on track to meet the 2030 global targets to reduce anemia and low birthweight, and acute malnutrition has risen by 25 per cent since 2020 in crisis-hit countries(UNICEF,2023).

The theoretical and empirical analysis on adolescent nutrition, a hidden crisis ,is neglected at global health and nutrition policies (Lancet,2022). The internationally recognized team of nutrition champions- 'Nutrition International' shows that with good nutrition,600 million adolescent girls can break the cycle of malnutrition and poverty. The study conducted on adolescent girls of Bangladesh shows that that illiterate young girls are more vulnerable to disease and undernourishment (Hossen et.al,2016). Thus, teenage girls' education should be prioritized in global health and nutrition policies. Educated adolescents are better exposed to information and services, nutrition knowledge and healthy family planning etc. (Cunnnighum et. al,2020). Well-nourished girls with access to education learn better, earn more over their lifetimes, and can better contribute to their families, communities, and countries. Early marriage and pregnancy and childbearing is another factor that affects the health and nutrition of adolescents. Researchers agree that early marriage and adolescent pregnancy can form severe risks for women's psychological and reproductive health, as well as on educational and social status (Sezgin & Punamaki,2020, WHO,2024). Among numerous factors, inadequate dietary intake, food diversity, amount of food consumption and skipping of meals are found to directly affect the body mass index (BMI) of adolescents in low and middle-income countries (Yemaneh et.al,2017).

The devastating impact of malnutrition among Indian adolescent girls are susceptibility of infection, difficulties of recovering from illness, low birth weight babies and higher risk of survival of the new born (WHO,2018; Rose-Clarke et.al,2019).Another estimate conducted on Indian Adolescent based on NFHS-3 and NFHS-4 data shows that persistently high-levels of stunting in Indian adolescent results loss of opportunity for their physical, psychological and cognitive development(Bhargava et.al,2020). To mitigate the stunted growth of the adolescent population of the country adequate provision of diverse diet need to be emphasized in different policy and programmes (Nithy & Bhavani, 2018). There is also necessity to inculcate healthy eating habits at a young age. Consuming junk foods high in fat and sugar with sedentary life style is responsible for the teenage overweight and obesity and threat of diabetes and hypertension in adult life (Gandhi,2022). There is need of in-depth operational research to identify different strategic interventions for adolescent girls' health and nutrition.

III. OBJECTIVE

The present study aims to

i. To assess the nutritional status of the adolescent girls of India and
ii. To identify the socio-economic and demographic factors associated with the nutritional status of the adolescent girls.

IV. METHODOLOGY

The present study is descriptive and analytical in nature. To reach the targeted objective, necessary data is collected from different secondary sources like National Family Health Survey (NFHS), Comprehensive National Nutrition Survey (CNNS), WHO and UNICEF reports and UDISE and UDISE Plus for educational data of adolescent girls of the country.

V. DISCUSSION & RESULT

ANTHROPOMETRIC INDICATORS AND NUTRITIONAL STATUS

The adolescent generation of the country has been facing the triple challenges of underweight, overweight and obesity. The Comprehensive National Nutrition Survey (CNNS, 2016-18) shows that 24 % of adolescents were thin for their age (wasted) (BMI-for-age $< 2SD$), 27.2% were stunted (short for their age) and 5 percent of adolescents were overweight or obese (BMI for age$> +1SD$). Underweight is a clear indication of inadequate dietary intake and vitamin A deficiency while weight gain is the result of a positive energy balance. The CNNS of India reveals that only 11 % of adolescents have adequate dietary diversity. Recent studies on adolescent dietary diversity and nutrition have found that only 24 % of adolescents have a high mix diet(Sharma et.al,2021) and inadequate dietary intake is significantly associated with poor nutritional outcomes among females in India. Energy expenditure, as assessed through levels of physical activity, declines in children as they reach adolescence, particularly in adolescent girls. There is evidence in literature (Zang &Wang, 2013) that children and adolescents of urban families are more overweight than their rural counterpart. A comparative study of rural and urban adolescents of Delhi (Anand & Sharma,2023) shows that the prevalence of underweight is approximately three times more in rural areas (27.6%) as compared to urban areas (8.6%) which may be attributed to gender bias, more physical strenuous lifestyle and lack of knowledge about adequate calorie requirements among adolescents. Being overweight is high in urban areas (42.4%) compared to rural areas (13.3%) which can be attributed to the easy availability of junk food, higher screen time and the sedentary lifestyle of urban adolescents. Overweight and obesity during adolescence becomes a risk factor of overweight and obesity as an adult.

Adolescent women who constitute about 17% of the total female population in India, are particularly vulnerable to anemia due to their unique physical and psychological changes that occur during this stage of life (Bellizzi et.al,2021, Chakrabarty,2023). The prevalence of anemia among adolescent girls' in India was 54% in NFHS-4 and increased to 59% in NFHS-5. These adolescent girls are vulnerable to iron deficiency anemia due to low intake and absorption of iron and increased iron requirement for growth and replacement of menstrual blood losses. Anemia in adolescence puts a young woman and her future child a risk of premature birth, low birthweight, and perinatal mortality. Anemia also results poor physical and cognitive development and negatively impact the economic development of a country. There is evidence in literature that low physical and cognitive development due to iron deficiency anemia cost developing countries up to 4.05% loss in Gross Domestic Product (GDP) per year (Horton & Ross,2003) and for India this loss is 1.2% of GDP(MoHFW).

ADOLESCENT PREGNANCY

Adolescent pregnancy is another challenge to adolescent health and thereby to future generation. In India, 7 percent of women age 15-19 have begun childbearing; 5 percent of women have had a live birth and 2 percent of women are pregnant with their first child (NFHS-5). The level of teenage childbearing declined slightly between 2015-16 (8%) and 2019-21 (7%).The

NFHS-5 indicate that states like West Bengal and Bihar have the highest rate of teenage pregnancies. In West Bengal, 16 % of women aged 15-19 were pregnant or had given birth. This trend reveals the persistent issue of child marriage and its impact on young girls.

SOCIAL NORMS AND HOUSEHOLD POVERTY

societal norms play important role in perpetuating child marriage and teenage pregnancy. Many families consider early marriage as a financial solution. Poverty and economic vulnerability drives low-income families to marry off daughters early, reducing perceived risk of violence. Gender inequality further exacerbates these issues. The patriarchal society limits girls' access to education and healthcare and thereby results unhealthy and low productive future generation.

SCHOOL DROP OUTS

India is not in the track to achieve the Sustainable Development Goal 4 and 5 which emphasis on "inclusive and quality education for all" and "empowering all women and girls'" respectively. In India, while the gross enrolment ratio in higher education has shown improvement over the years, student dropout rates remain a persistent challenge in the country's education system (Namitarani & Rekha,2025). The issue of more significant concern lies in the dropout rates among female students surpassing that of their male counterparts (UDISE+,2021-22). The National Commission for Protection of Child Rights (NCPCR,2019) shows that 39.4% of girls aged 15-18 years drop out of school or college in India. 64.8% of those girls drop out from school or colleges is not to work but to handle household chores. While primary dropout rates are relatively low at 1.9 %, they increase dramatically to 14.1 % at the secondary level indicating a critical transition point where many students leave the education system (UDISE+2023-24). The girls drop out limits not only their formal education but also scope for empowerment and knowledge and open the door of marriage and longer fertility period. All these negatively effect the nutrition and health status of adolescent girls.

NUTRITION KNOWLEDGE

The consumption of balanced diet for the rapid physical and cognitive development of the adolescent girls have long run impact on their reproductive health and also on their future generation. The knowledge of different nutrient rich food may help them to follow a balanced diet pattern and reduce their consumption of junk food. The indigenous knowledge of nutrient rich locally available food is another factor of positively contributing adolescent girls' health and nutrition status. The consumption of Iron and Folic Acid (IFA), knowledge of family planning measures and protections, health and hygiene practices like hand washing with soap and water, proper cleaning of food before preparation and consumption and menstrual hygiene and use of pads during mensuration, knowledge and practice of yoga and other fitness measures etc. are essential determinants of adolescent girls' health and nutrition as well as the future of a productive generation in the country.

VI. MEASURES & WAY FORWARD

The government of India as an initiative to adolescent health and nutrition has adopted and implemented schemes like 'Kishori Shakti Yojana', ICDS adolescent girls' scheme, distribution of Iron and Folic Acid (IFA), general nutrition education through school media etc. All these initiatives are not completely able to eliminate the problems of adolescent nutrition . There is need of more integrated approach from all the sectors to develop the health and nutritional status of the adolescent age group which represents window of opportunity to prepare for for healthy adulthood.

The most important initiatives for removing malnutrition among adolescent age group population are as follows-

(i) Healthy eating and lifestyle behaviour should be promoted and practiced, thereby preventing and postponing the onset of nutrition related chronic diseases and obesity in adulthood.

(ii) Change in dietary pattern, increase in consumption of vegetables and fruits, dietary products and animal foods, and modification in food processing methods help in improving diet and micronutrient status.

(iii) There is need of fortification of food (i.e. practice of adding vitamins and minerals to commonly consumed foods during processing to increase the nutritional values) with micronutrient deficiencies of economically deprived population.

(iv) Undernourished adolescents would require further nutrition interventions, besides proper health care, to improve their health and nutrition status.

(v) The education sector of the country can play a major role in developing nutrition and health status of the adolescents by organizing school health programme, imparting nutrition education, providing nutrition counselling services, addressing gender discrimination and linking nutrition with life skill education in school.

(vi) Mass awareness campaign through mass media should be developed in collaboration with the health sector to create awareness among masses.

VII. CONCLUSION

The available literature and database on adolescent nutrition is very limited at national as well as regional level. There is need of operational research to test the ways of scaling up the interventions. Moreover, recognizing intersectoral collaboration as one of the strategies to address the problems of adolescent nutrition, appropriate methodology and tools should be prepared to further sensitize community health workers, education sector, women's welfare and child development and other sectors to effectively incorporate and address the relevant issues of adolescent health and nutrition.

REFERENCES

1. *UNICEF (2019): Adolescent Demographics. Retrieved from www.data.unicef.org on August 23, 2025.*
2. *Das, J.K.; Salam,A.R.,Thornburg,K.; Prentice,M.A.(2017): Nutrition in adolescents: physiology, metabolism, and nutritional needs: Adolescents: physiology, metabolism, and nutrition. Annals of New York Academy of Sciences. 393(1):21-33Available at: http://dx.doi.org/10.1111/nyas.13330*

3. *Heslin,M. A.; McNulty, B.(2023):Nutrition and health: characteristics, risk factors and opportunities of an overlooked life stage. Proceedings of the Nutrition Society.82(2):142-156. Available at: https://doi.org/10.1017/S0029665123002689*
4. *UNICEF (2023): Undernourished and Overlooked- A global nutrition crisis in adolescent girls and women. Available at https://www.unicef.org/reports/undernourished-overlooked-nutrition-crisis*
5. *Lancet (2022): The hidden crisis of adolescent nutrition. Lancet Child Adolescent Health. 6(1):1. https://doi.org/10.1016/s2352-4642(21)00381-3*
6. *Hossen,K.; Rahman,F.; Mashreky, S.R.(2016) : Nutritional status of adolescent girls in Bangladesh:findings of a community based survey . South East Asia Journal of Public Health . 6(1):3-7. Available at: http://dx.doi.org/10.3329/seajph.v6i1.30337*
7. *Cunnighum, K.; Pries,A.; Erichsen ,D; Manohar,S.; Nielsen, J. (2020): Adolescent Girls' Nutritional Status and Knowledge, Beliefs, Practices, and Access to Services: An Assessment to Guide Intervention Design in Nepal. Current developments in nutrition. Available at : https://doi.org/10.1093/cdn/nzaa094*
8. *Sezgin, A.U; Punamaki,R.L. (2020): Impacts of early marriage and adolescent pregnancy on mental and somatic health: the role of partner violence. Archives of Women's Mental Health.23:155–166 Available at: https://doi.org/10.1007/s00737-019-00960-*
9. *World Health Organization(2024) : Adolescent Pregnancy. Available at: https://www.who.int/news-room/fact-sheets/detail/adolescent-pregnancy*
10. *Yemaneh, Y.; Girma, A.; Niguse, W.; Hailu, D.; Alemayehu, T.; Mesfin, F.; Abera, A.; Dagnachew, E.(2017): Undernutrition and its associated factors among adolescent girls in rural community of Aseko district, Eastern Arsi Zone, Oromia region, Eastern Ethiopia. World Health. 2, 17–26.*
11. *World Health Organization. Guideline: implementing effective actions for improving adolescent nutrition. Geneva: World Health Organization; 2018.*
12. *Rose-Clarke K, Pradhan H, Rath S, et al.(2019): Adolescent girls' health, nutrition and wellbeing in rural eastern India: a descriptive, cross1) International Reviews:*
13. *Bhargava,M.; Bargava, A.; Ghate, S.D.; Rao,R.S.P.(2020): Nutritional status of Indian adolescents (15-19 years) from National Family Health Surveys 3 and 4: Revised estimates using WHO 2007 Growth reference. PLoS One. 24; 15(9): e02399*
14. *Nithya,D.J.; Bhavani,R.V.(2018): Dietary diversity and its relationship with nutritional status among adolescents and adults in rural India Journal Biosoc. Science, (2018) 50, 397–413. https://doi:10.1017/S0021932017000463*
15. *Gandhi, A.B. (2022): Diet and weight management in adolescent girls. The Journal of Obstetrics and Gynecology of India . 72(2):175–177 https://doi.org/10.1007/s13224-022-01647-*
16. *Sharma, S. Maheshwari, S. Kuwatada, J. Chandrashekhar and Mehra, S (2021) Assessing Dietary Intake Patterns Through Cluster Analysis Among Adolescents in Selected Districts of Bihar and Assam From India: A Cross-Sectional Survey. Frontiers in Nutrition. 8:592581. doi: 10.3389/fnut.2021.592581*
17. *Zhang, Y.X, Wang, S,R.(2013) Rural-urban comparison in prevalence of overweight and obesity among adolescents in Shandong, China. Annals of Human Biology. 40(3):294-7. https://doi.org/10.3109/03014460.2013.772654*
18. *Anand,A. & Sharma,P.(2023) Prevalence and Determinants of Malnutrition Among Adolescents in Delhi: A Rural-Urban Comparison Study. Cureus 15(5): e39135. DOI 10.7759/cureus.39135*
19. *Chakrabarty, M. Singh, A. Singh, S. Chowdhury, S. (2023) Is the burden of anaemia among Indian adolescent women increasing? Evidence from Indian Demographic and Health Surveys (2015–21). PLOS Global Public Health 3(9): e0002117. https://doi.org/10.1371/journal. pgph.0002117*
20. *Bellizzi S, Pichierri G, Panu NapodanoCM,Salaris P, Fiamma M, FozzaC,et.al(2021) Iron deficiency anaemia and low BMI among in India: The transition from 2005 to 2015. PublicHealthNutrition.;24:1577–1582. https://doi.org/10.1017/S1368980020004292*
21. *Horton,S. & Ross,J (2003)The economics of iron deficiency. Food Policy. 28: 51–75.*
22. *Ministry of Health and Family Welfare. Guidelines for Control of Iron Deficiency Anaemia. National Rural Health Mission. 2013.*
23. *Namitarani , G. & Rekha, R.(2025) Drop out v/s retention of female students: unfolding dynamics of the education system in Indian state. Discover Education. 4:176. https://doi.org/10.1007/s44217-025-00552-0*
24. *Unified District Information System for Education Plus (UDISE+) 2021–22. [cited 2024 Dec 26] https://dashboard.udiseplus.gov.in/#/home*