

# Effectiveness of Nutrition Education Intervention on Knowledge and Health Status of Adolescent Girls of Slum Areas: A Review

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## Abstract

Nutrition plays a critical role in growth and development during adolescence. Poor nutrition in this period may cause growth retardation and delay in development. Optimal nutrition, particularly in the case of adolescent girls, becomes very important because of their increased nutritional requirements. Moreover, adolescent girls belonging to low marginalized communities, like slum areas, may suffer from malnutrition due to poverty, gender discrimination, and other socio-cultural norms. Further, less age and young undernourished pregnant women may give birth to babies having low weight. This may lead to nutritional deficiencies and increased chances of mortality among both, child and the mother. The Poor nutritional status of these girls could be attributed to lack of education, information, and health care facilities. To improve their nutritional and health status, nutrition education intervention has been increasingly recognized during recent years. Nutrition education-related intervention programs along with educational strategies can be implemented to facilitate acceptance of healthy nutrition behaviors, which can be conveyed at individual and community levels. The literature on the impact of education intervention points towards a positive effect of such strategies on the adolescent girls nutritional status. However, to improve its effectiveness, proper strategic planning at the community level and its implementation at the school level is needed.

**Keywords:** Adolescent Girls, Adolescent Nutrition, Urban Slum, Nutritional Status, Nutrition Education

## Introduction

WHO identifies adolescence period between 10 and 19 years, which occurs after childhood and before adulthood (WHO, 2015). Today, every fifth person in India is an adolescent constituting 19.6 per cent of the total population i.e. 236.5 million among a total population of 1205.6 million (Census 2011). Nutritional requirements are at their peak during this phase of the life cycle and malnourishment can lead to retarded growth, frequent infections, as well as a constraint on full physical and psychological development (Population council and UNICEF, 2013). This situation becomes even more critical in the case of adolescent girls due to higher nutritional needs and lower social status. Undernutrition and anemia affect over 50 per cent of adolescent girls in South Asia, particularly those who are from poor socio-economic backgrounds. Moreover, the decrease in its rate over the past 10 years has been slow (Aguayo and Paintal, 2017).

Gender bias in nutrition is quite apparent. Comparatively, adolescent girls are subjected to more nutrition and health-related issues than their male counterparts. A study carried out on adolescent boys and girls in Pune city revealed a higher prevalence of anemia among girls (51%) than the boys (13%), and the difference was reported

to be significant (Mane *et al.*, 2012). In another study, the majority of the socio-economic variables, viz. occupation of father, family income, number of siblings, and size of the house were found to have an adverse effect on the nutritional status of girls than on the boys. This difference in the attitude of parents and caretakers against the female child was reported to be the major reason for chronic undernutrition among them (Mondal *et al.*, 2012).

Various studies have reported the association between socio-economic status and nutritional status. Rani *et al.* observed a decrease in the percentage of malnourished girls with an increase in the economic status (Rani *et al.*, 2018). In another study, adolescent girls belonging to lower socio-economic groups showed a high prevalence of anemia than the girls belonging to higher socio-economic groups (Chandrakumari *et al.*, 2019). Demography and residential environment also affect nutrition and health-related outcomes in the general population. A study done on the dietary practices and nutritional awareness among the adolescent girls found that the majority (73%) of the rural adolescent girls had moderate awareness in comparison to urban adolescent girls, where a majority of them (57%) had high nutritional awareness (Deepika and Reddy, 2019).

Rapid urbanization in the 20th century led to the development of slums. Slums in urban areas are characterized by thickly populated settlements with inadequate public services and poor housing conditions, which include sanitation, electricity, water, and waste disposal. Lack of these services renders residents of the urban slum areas to infections and poor health outcomes (Ezeh *et al.*, 2016), including parasitic, waterborne, and vector-borne diseases. Poor hygiene practices further intensify these problems. Besides, poor living conditions, adolescent girls of urban slum areas are also exposed to physical challenges and mental challenges, which could be due to the ever-increasing pressure of modernization (Prashant and Shaw, 2009). They not only face nutrition problems, but they also have inadequate infrastructure, due to which they are not able to achieve proper health care during illnesses. They are more susceptible to nutritional deficiencies due to physical and social vulnerability and less awareness about a healthy diet during adolescent years (Rani *et al.*, 2018).

By definition, nutrition education is a combination of educational strategies, accompanied by environmental support, designed to facilitate voluntary adoption of food choices and other food and nutrition-related behaviors conducive to health and well-being. Nutrition education is delivered through multiple venues and involves activities at the individual, community, and policy levels (Contento, 2011). Nutrition education helps in providing access to useful nutrition-related information within communities and thereby influences their nutritional status through dietary modification. Therefore, proper nutrition-related knowledge is very important for adolescent girls living in slum areas to overcome health and nutrition-related problems.

#### **Nutritional Status of Adolescent Girls of Slum Areas**

Adolescents, especially girls, from marginalized communities face several hurdles, like gender differences, poor socioeconomic status, socio-cultural customs, etc. Anemic mothers and those below 18 years of age are more prone to give birth to low-weight babies, leading to morbidity and mortality of both infant and mother (Population council and UNICEF, 2013). A community-based cross-sectional study on adolescent girls in a slum community reported a high prevalence of underweight among them (48.5%) (Kumar *et al.*, 2014). In another study on the slum dweller girls of Vishakhapatnam City, revealed nearly one-third of the girls to be suffering from chronic energy deficiency (CED) (Nagamani and Veni, 2015).

Undernutrition was highly prevalent among adolescent girls, as reported in a study conducted in slum areas of Pune city, along with a high *per centage* of anemic subjects

(Joshi *et al.*, 2019). A study conducted in a slum area of Uttar Pradesh revealed the prevalence of anemia among 78.5 *per cent* of adolescent girls, which is quite alarming (Arya *et al.*, 2017). A cross-sectional study in Bangladesh accounted for a place of living, literacy level, expenditure on food and inadequate knowledge of food, and nutrition to be the main underlying cause for malnutrition (Begum *et al.*, 2017). The Food security status of adolescent girls is proportionately related to the total household income, which is generally quite low in urban slum areas (Alam *et al.*, 2018).

Prevalence of stunting and thinness among 30 *per cent* of the subjects and some form of morbidity among 46 *per cent* of the subjects were reported in a study conducted on the school going adolescent girls of the slum areas of Jaipur city, reflecting poor nutritional status and a need to address their nutrition and health related issues (Bhargava and Goyal, 2020). Lower intake of almost all the nutrients was observed to be more among women of reproductive age belonging to urban slums and those from backward classes as compared to their counterparts in a community based cross-sectional study (Sharma *et al.*, 2020). It was also reported that only 35 *per cent* of the adolescent girls were able to meet 70 *per cent* of the recommended energy requirements.

#### **Existing Nutrition-related Knowledge of Adolescent Girls of Slum Areas**

A Gap in nutrition-related knowledge is a major barrier towards healthy eating behavior. Among 250 adolescent girls belonging to low-income families of Delhi, nearly 72 *per cent* of girls skipped one or more meals every day and about 34 *per cent* reported consumption of fruits and vegetables not necessary daily (Rastogi *et al.*, 2019). Another study reported poor nutrition-related knowledge among slum adolescent girls along with a high prevalence of undernutrition reflecting the need to emphasize the importance of nutrition education (Chaudhary, 2016). Inadequate knowledge on reproductive health and its associated illness among 90 *per cent* of the subjects was exhibited in a study conducted on the adolescent girls residing in urban slums of a metropolitan city (Kadam *et al.*, 2019).

#### **Impact of Nutrition Intervention on the Knowledge and Health Status of Adolescent Girls in Slum Areas**

The Majority of nutrition policies and interventions target pregnant and lactating women as these phases are critical. However, it is very important to improve the nutritional status of adolescent girls to break the cycle of malnutrition (Save the children, 2015). Investing in nutrition interventions for adolescent girls would greatly help in combating the issue of malnutrition on a large scale. A huge knowledge gap lies in adolescent nutrition that offers

promising avenues for improving health and development in this age group (Canavan and Rawzi, 2019).

Apart from the positive effect of a nutrition education intervention on the existing knowledge level, various studies have also reported its effectiveness in improving the health status of adolescents. A study reported improved nutritional awareness and behavior among adolescent girls after receiving 2 months of training regarding nutrition and reproductive health care (Ramrao, 2013). Another study revealed the percentage of correct responses improved greatly, ranging from 71-96 per cent, immediately after education intervention (Savita *et al.*, 2013). A quasi-experimental study conducted among the adolescent girls of the slums of Kolkata reported a significant decrement in the proportion of undernourished students at the post-test level and this improvement in nutrition was carried in the follow-up period (Pal and Pal, 2017). A study was done on the adolescent girls of the tea tribe in the Dibrugarh district of Assam also reported the effectiveness of implementing interventions in reducing the burden of anemia and associated factors (Mahanta *et al.*, 2014). Findings of a study revealed the effectiveness of nutrition education in improving calcium-related knowledge, attitude, and practices among adolescent students (Naghashpour *et al.*, 2014).

Conducting nutrition education interventions for adolescent girls becomes far more important in underprivileged communities such as slum areas because of social isolation, economic vulnerability, and lack of basic health information and facilities. As reported, the significant increment was seen in the knowledge level of the adolescent girls, living in urban slum areas of Hyderabad city, with regards to various focal themes of the intervention such as food groups, calcium, and vitamin A requirements, anemia, and family life education (Rao *et al.*, 2016). Awasthi *et al.* (2016) also stated in their study on the adolescent girls in urban slums of Moradabad that nutrition education is needed to improve health status since the nutritional status gets severely affected due to poor dietary habits (Awasthi *et al.*, 2016). Importance of inter-sectoral collaboration among health and education sectors in order to provide nutrition education was also emphasized by another study conducted on adolescent girls in rural area of Nagpur district, which reported a high prevalence of anemia and undernutrition among them (Thakre *et al.*, 2020).

IEC interventions are quite effective in bridging the knowledge gap in communities as they engage different channels of communication for the dissemination of messages and are cost-effective too, and are suitable for low-budget programs (The visual house, 2019). Dutta *et al.* (2017) in their study revealed a positive impact of the IEC program on the hemoglobin levels of the subjects

falling in the experimental group. The proportion of the subjects with normal hemoglobin levels increased significantly from 0 to 27.8 per cent. Also, the proportion of moderately anemic subjects decreased from 30.55 per cent to 11.11 per cent after the intervention. In a study by Rao *et al.* (2016) an integrated approach in communication methods *viz.* combination of print media (charts, folders) with electronic media (CD), besides personal interaction is very effective in improving the knowledge levels of adolescent girls (Rao *et al.*, 2016). Another study by Geetha *et al.* (2017) also stated the effectiveness of IEC intervention in improving the knowledge level as well as hemoglobin level of rural adolescent girls.

Realizing the importance of prioritizing adolescent girl health, various schemes have been launched by the government in this regard. A special intervention put into operation in November 1991 by the name Kishori Shakti Yojna (KSY) aims at breaking the cycle of nutritional and gender disadvantage to create opportunities for self-development. Beneficiaries of this program specifically include adolescent girls of the age group of 11-18 years whose family income is less than Rs. 6400 per annum (Maliye and Garg, 2017). However, poor awareness and utilization of KSY services were observed among adolescent girls in a study, which reported only 26.5 per cent of the girls to be part of the KSY supplementary nutrition program and only 32.70 per cent were aware of the KSY services being provided at the Anganwadi center (Aithal *et al.*, 2018). The percentage of girls availing KSY services was reported to be only 8 per cent by another study conducted on the adolescent girls residing in urban slums of Mumbai (Kowli and Dyavarishetty, 2013). Reasons for poor utilization of such services were found to be lack of awareness, community's perception that these services are not needed by them, as well as, lack of suitable timings. In regions where the majority of the girls were part of the program, it was observed that Rajiv Gandhi Scheme for Adolescent Girls - SABLA (RGSEAG-SABLA) program offers a huge potential platform for addressing current gaps, if, implemented properly and effectively on a large scale (Banseria *et al.*, 2019). Hence, despite there being a provision of a lot of programs and schemes for the nutritional and financial upliftment of adolescent girls, lack of awareness and poor execution at the ground level are causing hindrances in the betterment of their health.

## Conclusion

Adolescent nutrition is affected by various socio-demographic factors like residence, economic status, and gender. Adolescent girls residing in underprivileged and marginalized communities like slum areas, in general, have poor nutritional status as they often lack basic information related to health and nutrition because of no or limited access to education and mass media like TV,



radio, and newspaper. IEC interventions are quite effective in creating awareness about the importance of nutrition and helps in promoting good health among them. However, large-scale programming and policy making are needed for the effective dissemination of nutrition information to create a greater and long-term impact on the health and well-being of the adolescent girls of slum areas.

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