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Snack Consumption among Underprivileged Adolescent Girls

We conducted this school based cross-sectional study to assess the snack consumption pattern of 702 adolescent girls (11-14 years) in nine government schools selected from three districts of Delhi. The results indicated high preference for snacks. Parents and teachers were identified as the most influential factors determining their food choices.

Key words: *Adolescent, Girls, Snacks.*

Children and adolescents have reported frequent snacking that can be a significant contributor to the energy content of their diets(1). This affects the consumption of normal nutritious diet. A study among school children in Nepal revealed that fast foods were preferred by more than two-thirds, and

that advertising influenced preferences in 80% of them(2). Habits acquired in adolescence persist into adult life. Therefore behavior developed in young people may have important long-term consequences on health.

We conducted a school based cross-sectional study in nine government girl's schools, randomly selected from three districts of Delhi. Prior written permission was taken from the Directorate of Education (Government of National Capital Territory of Delhi). Informed written consent was obtained from the principals of selected schools, concerned teachers, students and their parents. From each of the selected schools, one section of each grade (VII and VIII) was chosen randomly. All the students present at the time of administration of questionnaire in each section formed the study sample. Thus the study sample comprised 702 adolescent girls (11-14 years). A questionnaire was developed to elicit information regarding the consumption of different type of snacks, purchasing

snacks in school and from vendors and various factors influencing food choices of adolescent girls.

The snacking pattern of the subjects is presented in **Table I**. The frequency of consuming different categories of snacks was generally once to thrice a week. Almost all the children had strong liking for fast foods, fried foods and sweet snacks. Chowmein, maggi, *samosa*, ice-cream (mainly ice candies), chocolate and toffee formed the popular snack items for children. This finding is consistent with some other studies done on adolescents(3-5). Another study reported that 60% of snacks consumed by teenagers are high in fat and low in nutritional quality(6). Procuring food items available in school was common; only 29.3% never bought anything in school.

Furthermore, 62.1% subjects reported that they purchased food items from the vendors around their school or home, two to three times in a week, especially *tikki/chaat* (29.8%), *chole bhature* (23.2%) and *chowmein* (27.5%). Only close to one-fourth of the sample reported consuming fruits (23.5%) and juices (25.0%) from the vendors.

Parents (75%) were the most influential factor influencing their diet, followed by teachers (54%) and friends (42.5%). Media was not perceived as a major influencer by the subjects. Parental behavior affects socio-affective context in which foods are presented and the context has been found important for the formation of food preferences(7).

The present study shows high preference for convenient, ready-to-eat, easily available, high calorie snacks even among adolescent girls belonging to low socioeconomic status. However in this study group, the frequency of consumption of

such snacks was not very high. This could probably be due to limited economic resources and limited variety available near home and in schools. It is important to make students aware on the issue of judicious selection of food items as well as food safety, thus empowering them for sound decision making. There must be proper provision of nutritious food in school so as to ensure that even if some students are not able to eat breakfast or bring packed lunch (tiffin), they do not resort to snacking.

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TABLE I SNACKING PATTERN OF ADOLESCENT GIRLS

Category of Snacks	Frequency per week (% of subjects)				
	Never	Once	Twice	Thrice	More than thrice
Fast foods	3.3	30.8	28.5	17.9	19.5
Fried foods	1.9	26.1	29.1	25.6	17.4
Sweet snacks	5.6	32.1	22.9	17.7	21.8
Other sweet items(toffee, chocolate etc.)	5.3	21.9	22.4	15.2	35.2

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Plasma Efavirenz in HIV-Infected Children Treated with Generic Antiretroviral Drugs in India

We measured plasma concentration of efavirenz (EFV) in 16 HIV-infected Indian children receiving antiretroviral treatment at Government ART centres. The mean 12-hour concentration was 2.39 µg/mL (range: 0.72- 7.82 µg/mL). The majority of children treated with generic EFV at currently recommended doses had blood levels within the therapeutic range.

Key words: *Antiretroviral treatment, HIV-infected children, Plasma Efavirenz.*

The National AIDS Control Organisation (NACO) has developed a weight-based dosing card used in antiretroviral treatment (ART) centres, which aims to provide the correct dose of antiretroviral drugs to children(1). We measured the steady state 12-hour plasma concentration of efavirenz (EFV) in HIV-infected Indian children receiving treatment with generic drugs, to determine if this weight-based approach resulted in optimal blood levels.

Sixteen HIV-infected children (6 males) receiving an EFV-containing ART regimen for at least two weeks from Government ART centres at Kilpauk Medical College and Hospital, Chennai; Government Rajaji Hospital, Madurai; and BJ Wadia Hospital, Mumbai; were recruited. The mean age was 101 months, mean CD4 count was 14% and mean body weight was 18.8 kg. None were on

concurrent rifampicin-containing anti-TB treatment. The study was cleared by the Institutional Ethics Committee; informed written consent was obtained from parent/guardian. Twelve-hour plasma EFV concentration was determined by HPLC(2).

The mean 12-hour EFV concentration in the 16 children was 2.39 µg/mL (range: 0.72-7.82 µg/mL). The blood levels were within the therapeutic range (1 – 4 µg/mL) of EFV in 12, below 1.0 µg/mL in 1 and above 4.0 µg/mL in 3 children. The only child who had sub-therapeutic EFV concentration had not shown an increase in CD4 cell counts up to 36 months of treatment. Weight gain ranged from 0.3 to 19.5 kg during a treatment period of 1 to 93 months and clinical status showed improvement in all children.

The clinical recommendations for treatment of children with EFV are based on data obtained in adult patients(3). In this small group of children studied, the mean dose of EFV received was 14.6 mg/kg body weight, which is within the recommended dosing range (10.0 to 16.7 mg/kg). Hirt, *et al.*(4) suggested that pediatric dosing guidelines for EFV should be based on both age and body weight, since plasma clearance of EFV decreased significantly with age, due to higher activity of hepatic drug-metabolizing enzymes in younger children.

We found that the majority (15 out of 16 children) receiving EFV doses based on the NACO guidelines had 12-hour EFV concentrations within or above the therapeutic range. Three children with drug levels above the therapeutic limit did not have any obvious adverse effects due to EFV. Although these findings are encouraging, the small sample size limits the