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# Understanding Eating Behaviors of New Dehli's Youth

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# Understanding Eating Behaviors of New Dehli's Youth


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## Introduction

Modern India is at a nutritional and dietary crossroads. While India has historically experienced an undernutrition problem, the last few decades have seen an increase in overnutrition, which is often synonymous with overweight and obesity. Indian urban youth are particularly affected by this dietary dichotomy.[1] Overweight and obesity in Indian youth are rising, just as in adults, and current estimates shown that 10% to 30% of children and youth (ages 5 to 17) in India are overweight or obese; the global prevalence for this age group is 10%.[2,3] These higher levels of obesity have been linked to low physical activity, screen time, and the consumption of unhealthy foods.[2]

It is widely reported by leading public health organizations that caloric energy imbalance, lack of physical activity, and other factors, such as behaviors, environment, genetics, and culture, may put youth at higher risk for overweight and obesity.[4,5] The combination of these factors may predispose overweight and obese adolescents to adult overweight and obesity.[6-8] Overweight and obesity may affect teenagers' health outcomes by increasing their risk of cardiovascular disease and their chances of getting noncommunicable diseases in adulthood.[9] In India, heart disease has increased up to 6 times in the last 4 decades; by 2010, the prevalence of diabetes had increased 4 times, and hypertension is expected to nearly double by 2025.[10]

A healthy diet is a key factor in the development of healthy children and adolescents and could prevent childhood and adolescent obesity.[9] Cross-sectional studies support the idea that breakfast consumption helps children and youth keep a healthy weight and may lead to healthier eating.[11] Soft drink consumption has been associated with increased energy and weight in youth as well as a decrease in nutrient intake.[12] However, the development of eating patterns is rooted in a complex set of behaviors that are shaped by different factors, including behavioral, social, cultural, and economic conditions,[13] as well as genetic predispositions, innate reactions to common tastes, neophobia, environmental factors, parental feeding practices, and the potential to learn food preferences.[14] Therefore, it is important to evaluate children's and youth's nutritional knowledge, beliefs, understanding, and nutritional habits, as these may dictate future food-related behaviors (i.e., purchasing and consumption). The information would aid social scientists in the development of effective nutrition interventions that may help children and adolescents in making healthier food choices and prevent overweight and obesity.

The qualitative literature about eating habits of Indian youth is slim. The present paper seeks to understand eating habits, patterns,

knowledge, and attitudes toward healthy and unhealthy eating. In addition, the paper seeks to add to the body of qualitative literature about eating behaviors of Indian youth, with a specific focus on breakfast consumption, fruit and vegetable intake, and consumption of sugar-sweetened beverages. To our knowledge, only a handful of qualitative studies evaluating the perceptions of healthy eating among Indian adolescents exist; none have focused on these behaviors, specifically, which have been linked to overweight and obesity in the West and may, therefore, prove problematic in India.

Sharma posits that affluent Indian families have more access to travel, television, and other commodities that may expose them to western companies and culture. The recent advent of multinational corporations has introduced popular western-style foods (e.g., burgers and pizzas) and drinks (e.g., Coca-Cola and Pepsi). These items, once seen as imports, have been adapted by trendy adolescents and are now seen as part of the "new" Indian culture.[15]

A study of South Indian school children and youth suggested that eating behaviors may be affected by social changes; higher socioeconomic status (SES) families may adopt a foreign approach to food consumption (i.e., western-style) that may translate into the consumption of nontraditional foods. Although knowledge increased with age, consumption of healthy foods did not. Additionally, researchers found that Indian youth who eat away from home had significant increases in caloric consumption. These factors may suggest that changing social norms and the adoption of new food cultures may have a significant impact on adolescents' caloric intake; these behaviors may be hard to undo.[13,16]

Another study assessed the knowledge and dietary intake of school-going youth in Hyderabad. Researchers found that higher SES youth had higher nutrition knowledge when compared to lower SES youth. Adolescents from a higher SES had a higher intake of protective foods when compared to lower SES teenagers. Even though higher SES youth preferred fast foods to more traditional Indian fare, teens from both SES groups equally consumed carbonated beverages. The findings suggest that increased nutritional knowledge may lead to higher intake of protective foods and underscored the importance of educating lower SES youth about healthy eating.[17]

## Methodology

### Study Settings and Participants


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This is a cross-sectional qualitative study of students enrolled across 5 private schools in New Delhi, India. Fifteen focus group discussions were conducted, and 151 students participated in them between September and December 2009. Sixth and eighth grade students, between the ages of 10 and 14, were recruited through purposive sampling. Students were from a higher socioeconomic status, as is typical of Indian private schools.[15] Obesity and overweight are most problematic among youth in private schools in India.[18] Each focus group had up to 12 participants, and focus groups had an even number of male and female students. Institutional review boards in both India and the United States provided approval to conduct the study. The study required active parental consent and active student assent to participate. A small certificate of appreciation was given to students as incentive to participate.

**Data Collection and Interview Guide**

One moderator conducted the focus group discussion assisted by 2 notetakers. Focus group discussion leaders and staff were trained in appropriate qualitative research techniques. The purpose of the discussion was disclosed to participating students, and each session commenced with a short icebreaker. Each semi-structured focus group discussion lasted approximately an hour, and an interview guide was used to facilitate the process. No teachers were present during the focus groups. All discussions were conducted in English, as English is the medium of instruction in private schools in India; language was not a barrier for these students. Focus groups were audio-recorded, then transcribed by field staff. The discussion questions regarding the 3 eating behaviors of interest are shown in Table 1.

**Table 1.** Interview Guide for Focus Group Discussions

| | |
|---|---|
| | **Introduction**<br>What we eat can affect whether we maintain a healthy weight or not – as can why we eat, when, and how. We will begin by discussing a few eating behaviors that research tells us are important to consider to help children your age maintain a healthy weight. |
| **1** | Studies show that <u>eating breakfast regularly</u> can help children your age maintain a healthy weight. Do children your age eat breakfast regularly (e.g., every day)? Why? Why not? [*Probe*: benefits, barriers] |

| | |
|---|---|
| **2** | How could children your age be encouraged to eat breakfast regularly (e.g., every day)? How could you help your friends do this? How could schools help? How could parents help? [*Probe*: minimize barriers, maximize opportunities] |
| **3** | Studies also show that drinking sugar-sweetened beverages, like soft drinks, can contribute to weight gain among children your age. Do children your age drink soft drinks? How often and/or when? Why? Why not? [*Probe*: benefits, barriers] |
| **4** | How could children your age be encouraged to quit drinking or reduce their drinking of soft drinks and/or choose something else to drink in their place? What would they choose? How could you help your friends? How could schools help? How could parents help? [*Probe*: minimize barriers, max opportunities] |

### Data Coding and Analysis

Notetakers transcribed audio recordings of the interview the same day of the focus group discussions in order to preserve nonverbal communications that were included in the transcriptions. Transcribers utilized written notes to increase the amount of details for each transcription. After completion of the audio transcriptions, data files were transferred to the United States for analysis. Data were imported into a specialized software program for qualitative research.[19] An a priori approach was used in data analysis, that is, codes were based on focus group discussion questions as opposed to the grounded theory approach in which preconceived notions and prejudices are left aside and codes emerge from the actual data. Data were coded and classified according to emerging themes by a trained research staff scientist. Codes of similar content were grouped into concepts, and these concepts were grouped into broader categories. Data were organized by schools and grade level to identify similarities or differences. After data analysis, findings were iteratively returned to India to make certain that interpretations were sound and accurate.

## Results

Results did not differ by gender or grade level. Thus, results are shown in narrative form for all research study participants, with direct quotes to support the summaries.

### Breakfast Consumption

Most teenagers in the study intuitively understood the importance of eating breakfast and were aware of its value. Many students consider breakfast

to be the main food of the day and purposely eat it to perform well in school and at home. Moreover, they intrinsically understood that a greater caloric intake is needed in the morning and should diminish as the day progresses. Students reported that breakfast gives them energy to study, play, stay fit, and maintain a healthy weight; they also understood that breakfast is important to encourage growth. In addition, they reported that skipping breakfast may cause headaches and poor performance. For example, one student shared, “No, ma’am, actually we eat it for our purpose. If we don’t eat breakfast, we feel hungry and we can’t concentrate on studies and sometimes we don’t feel good. . . .”

Perceived barriers to eating breakfast included the lack of appetite in the morning, the lack of variety in breakfast foods, the desire to lose weight, and the dislike for certain food items typically served during breakfast. Breakfast items typically included a combination of western foods, such as milk, juice, biscuits, corn flakes, toasts, omelettes, and sandwiches, and Indian foods, like chapattis and paranthas (Indian flatbreads). Youths’ main barrier to eating breakfast, especially during school days, was time. Students stated that sometimes mothers do not have enough time to prepare breakfast, teenagers do not have enough time to eat breakfast, and sometimes adolescents have low appetite or are simply not hungry. Other students reported not liking breakfast items prepared by their mothers or “poverty” as a reason for some students not to have breakfast. One student stated:

> Yes, [I eat breakfast] regularly. I think it is important for growth. One should not skip breakfast at all. With good health, I can perform multiple activities organized in school so that I’ll not feel tired while doing school homework and work at home. With heavy breakfast, children take much time to dress up. I request my mom that I’ll eat something like samosa, bread pakora outside or in school canteen, because I am always in hurry to go to school. I think in morning, time is a big barrier for having healthy breakfast. My mom says, "you always have lame excuses to avoid breakfast to have junk in your school or outside.”

Students hinted at the creation of school-based initiatives to promote breakfast eating. Students widely favored and encouraged the introduction of healthy foods at the school canteen, but they claimed the reason for not having healthy food at school canteens is that students do not like the healthier options. Almost universally, students expected the canteen to offer fruit juices and healthier breakfast items to encourage

teenagers' nutritional intake. They also expect the school canteen to take a more active role in the monitoring of students' breakfast intake. For example, one student suggested, "There should be a monitor in class who should monitor [what] other children are eating or not."

Study participants suggested that sharing breakfast with friends, having parents cook a variety of breakfast items, having encouragement from teachers, and having a snack break at schools would increase the regularity with which they ate breakfast. Students shared ideas like, "Parents could encourage children to eat breakfast] by preparing tasty food and by including interesting flavors, by preparing our favorite food. And Parents can provide breakfast that children like.

**Fruit and Vegetable Intake**

Participants were aware of the health benefits of fruits and vegetables and reported that nutritious foods like these contain carbohydrates and fiber, aid digestion, and provide energy to "grow properly." Students reported that fruits and vegetables provided vitamin C and "proteins," too.For example, one student said [Children should eat fruits and vegetables] because they are rich in proteins, vitamins. And another shared, "Our body gets enough energy to grow properly" [from eating fruits and vegetables].

Availability was not perceived as a barrier to consumption, though there were conflicting beliefs regarding the affordability of fruits and vegetables. Some students claimed that fruits and vegetables were expensive to buy, when compared to fast food, which was inexpensive in their opinion; others suggested the opposite. Many of these students categorically stated that they avoided fruits and vegetables to purposefully eat other foods, as they preferred the unhealthy items. Strong food preferences were a barrier to fruit and vegetable consumption for many students who preferred less healthful options and favored the reinvention of "junk food" into "healthy food." One student said, "Because they do not eat fruits, they feel hungry, so they use their pocket money in purchasing different types of soft drinks and junk food." Another student commented, "Senior students are most addicted to junk food." Finally, one student shared that, "Some people may find them [fruits and vegetables] expensive. Good quality fruits may not always be available. Some people may not find them near their homes."


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To encourage the consumption of fruits and vegetables, many adolescents advocated for stronger monitoring of food choices at home and school. Most students talked about the importance of discussing healthy eating at home, having available a variety of healthy foods, packing home lunches for school, and restricting “pocket money,” which was often used to buy unhealthier options. Adolescents perceived mothers as an important role model who should promote healthy eating. On the subject of parental encouragement, one student pointed out: “See, at this age, parents should have control on us. This is the time we interact with a lot of things so parents have to control on us. And maybe they should decrease the amount of pocket money.”

Students also advocated for food monitoring at schools as some students ate all their meals at school. When probed to consider school-based interventions to increase fruit and vegetable intake, students seemed to favor group discussions in class and teacher-led support (as opposed to peer-led support) as they thought that older students tended to be more “addicted to junk food” and thus would not be believable role models. Students suggested several strategies to increase fruit and vegetable intake: school media (e.g., posters), quizzes, dietary charts, and short plays. Students reported there was a lack healthy foods at the school canteen. Students suggested that the school canteen should provide healthy food options and restrict unhealthy items. Students thought that school-level policies restricting junk food were appropriate and that most teenagers and parents would follow them. For example, one student shared that, Parents should not give us money to buy food from the canteen. Instead, they should give [us] food that is made at home. Canteen food contains many harmful components which are not good for our health.” Another student shared, They should not allow us to buy fried food from the canteen. They should provide fruits.”

**Soft Drink Consumption**

Adolescents were keenly aware of the deleterious effects of soft drinks. Besides reporting that soft drinks were generally bad for health, teenagers stated that soft drink consumption may be addictive, degenerate bones, congest the throat, increase the risk of diabetes and obesity, and cause “stomach infections.” On more than one occasion, youth stated that soft drinks have been used at times to clean toilets and thus are perceived as a toxic substance. For example, one student stated, “Actually, cold drinks, which we drink, are used sometimes as a toilet cleaner to clean the toilet.

So it is very dirty that we drink. Another student said, “The ingredients used [to make soft drinks] are not good; it makes us addicted. Other students said, “They [soft drinks] melt our bones.” And, “Sir, from taking these soft drinks we have a stomach infection also.”

Students reported preferring ubiquitous brands such as Coca-Cola and Pepsi and consuming them often. Teenagers also reported buying Fanta, cold coffee, and lemonades with their “pocket money.” Notably, students seemed to have poor knowledge regarding the effects of consuming sodas on health. They perceived certain soft drinks to be healthier than others. For instance, adolescents reported that Pepsi was not good for health, while Slice and Mazza (a noncarbonated mango drink marketed by Coca-Cola) were okay to drink. Students were aware of healthier alternatives, including fruit and vegetable juices, water, milk, lemonade, and drinkable yogurt. However, many students preferred the consumption of soft drinks because they did not like the taste of fruit juices and milk. According to teenagers’ estimates, between 30% and 70% of adolescents consume soft drinks either every day or once in 2 days; some teenagers’ estimates go as high as 99%. When given a choice between plain milk, flavored milk, and soft drinks, most students choose soft drinks. Students also perceived the need for parental involvement and setting rules around all these foods and beverages. For example, students shared, that “Parents should not buy soft drinks for their children and can give them squash and fruit juice instead of soft drinks.”; “When we start drinking it [soft drink], we cannot stop”, and “We know that Pepsi is harmful and others, like Slice and Mazza, are okay.”

Home and school environmental factors seemed to aid student’s soft drink intake. At home, “pocket money” was perceived as giving students easy access to soft drinks. The home environment provided many opportunities for students to consume soft drinks, as teenagers agreed that parents often bring home soft drinks, particularly for special events such as birthdays or parties. At school, canteens provided easy access and availability for students who opted to consume soft drinks there. One student shared, “Parents should give them limited pocket money so that they won’t be able to buy soft drinks and parents should allot them fruit drinks on their own.” Another student said, “Parents should not buy such drinks [soft drinks] and bring them home.” Finally, another underscored that “Children could be encouraged to consume juices and flavored milk. Such drinks can be available in the school canteens instead of soft drinks. The schools should check that canteens are not keeping such soft drinks.”

To reduce soft drink purchases and consumption, students suggested several strategies. At home, students suggested repeatedly, parents should impose limits on “pocket money” and allowance for soft drink. At school, study participants suggested using morning assemblies to discuss the benefits of fruit juices and the disadvantages of soft drinks, the replacement of soft drinks with healthier drinks at the canteen, and the inclusion of a secondary school canteen with healthy options. Additionally, students suggested stricter school health policies enforced by teachers. Students, however, did not support a widespread ban of soft drinks at school. Adolescents expressed intentions to purchase healthier drink choices if available at the school canteen. One student stated, If school can spend so much money on soft drinks, then it can also spend it on fruits and vegetables.

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## Discussion

This study is one of the first to provide qualitative insight into the food environment of adolescents in urban India and supports previous findings suggesting there is adisconnect between Indian youths’ knowledge of healthy and unhealthy eating and eating behaviors. The gap between knowledge and behaviors seems to cut through different cultures. The current study suggests that despite their best knowledge, adolescents seem to gravitate to unhealthier foods. The same seems to happen in India,[13,20] the United States,[21,22] and Australia, [23] among other countries.

There is an evident shift in the eating habits of Indian youth. The advent of multinational corporations and their inherent marketing strategies combined with the rise of affluent families have given rise to an unprecedented availability of western foods that have infiltrated traditional Indian culture. The increased availability and desire for such goods have skewed youths’ eating habits to now include western foods as part of the “new traditional Indian diet.”

The majority of study participants reported eating breakfast on a regular basis, with some exceptions, and breakfast items consumed were a combination of western and Indian foods. These findings align with other studies reporting that Indian adolescents ate a combination of traditional and fast food meals, with those of higher SES having a greater preference for western-style foods and fast food meals.[13,16,17] However, the findings seem to contrast with the results of a study conducted by Rao et al, which found that the prevalence of breakfast eating among Indian youth was only around two-thirds.[24] Similarly, a longitudinal study conducted in the US reported that 4 out of 5 participating adolescents ate breakfast but noted that breakfast consumption decreases with age.[25] Due to insufficient studies about India youth, it is unknown whether the pattern of decline also affects adolescents in India.

Overall, students in India have a good grasp of general nutrition knowledge despite a few misconceptions. Students have sound knowledge and understanding of the difference between healthy and unhealthy foods. Study participants were able to link unhealthy eating with negative health outcomes and seem to intuitively understand the association between healthy eating and academic achievement—findings that corroborate previous studies by Swaminathan et al[13] and Shore et al.[26]

Despite good knowledge about nutrition, participants' eating habits revealed that adolescents gravitate away from healthier foods toward less healthy options, mainly due to taste. Participants believed that at most 25% of adolescents eat fruits and vegetables. When students chose to eat fruits and vegetables, they seemed to mostly favor fruits, usually at breakfast. Vegetables were not chosen as frequently as fruits; when vegetables were chosen, it was typically for dinner. An international systematic review of the literature, which included 21 Indian studies, suggested that youths' fruits and vegetables consumption decreases with age.[27] Unfortunately, the findings were inconclusive due to different instrumentation. The studies did consistently report that low SES status correlated with low fruit and vegetable consumption. The review also highlighted that rural youth had a higher consumption of fruits and vegetables and that taste preferences were correlated with fruit and vegetable intake.[27] The latter is consistent with the findings of the current study.

Soft drink consumption in urban India is widespread, varies greatly, and seems to be largely based on flavor preferences, with some studies reporting that over 90% of Indian adolescent participants consume soft drinks.[28] Participants in this study estimated that almost all teenagers drink

soft drinks and prefer them to healthier drinks, despite the fact that health issues related to soft drink consumption seem to be well understood by adolescents. Students noted that the home environment provides many opportunities for children to consume soft drinks. Although few studies have examined trends or factors associated with soft drink consumption in India, a study in the United States documented that the prevalence of soft drink consumption among youth increased over 50% in the last few decades [29], while another study identified parental habits, home and school availability, and television viewing as factors associated with soft drink consumption among US youth.[29]

The findings from this study suggest that interventions focusing on the home and school environment might be most effective. Therefore, future interventions may want to have a 2-pronged approach. First, there could be a home-based component that would inform parents and provide them with tools to modify behaviors and the home environment to improve adolescents' food choices. Mothers are perceived by students as primary role models and could be an asset in future programs. Students' suggestions of parental restrictions may underscore the importance of good parenting practices as children may feel they do not have the will to make healthy food choices when faced with different options.

Second, there could be a school-based component that involves school administrators enacting school policies and modifying the school environment. The school approach could greatly benefit from the assistance of teachers, as the students perceive them as believable secondary role models. School is mainly perceived by students as a place to get an education. However, students suggest that the school's role should also be to teach children how to eat a variety of healthy foods that are different from those purchased at home and establish a monitoring system to enforce school nutritional policies. School-based government programs promoting fruits and vegetables in Thailand found success in increasing the consumption of fruits and vegetables among children and adolescents.[30] Innovation seems to be a driving force in the food decisions that students make and should be a driving force of future interventions.

The results of this qualitative piece demonstrate 2 common threads across all domains of dietary behaviors: a) parent engagement, involvement, and rules around their child's diet, and b) school food environment and policies. Currently, in India, there has been a massive shift in diet from being a predominantly plant-based, whole-grain diet to a diet high in refined carbohydrates and energy-dense, nutrient-deficient foods and beverages. This shift in the food environment from a "traditional" to a "western" diet has been due to the increased availability

and affordability of such foods. For example, in 2012, Coca-Cola announced it would invest $5 billion in India by 2020.[31] At present, Coca-Cola and PepsiCo dominate the market for carbonated soft drinks in India. However, school policies supportive of healthy nutrition are severely lacking, especially in the government and private school sector. In the government school sector, the School Lunch Program, also popularly known as the Midday Meal scheme, mandates the provision of lunch to all children attending primary and upper primary schools in India, with the goal of alleviating malnutrition. [32] Western nations such as the United States have several federal and state-level policies that support a healthy nutrition environment in the schools.

For example, through the Healthy, Hunger-Free Kids Act signed into law in 2010, US schools are required to provide meals rich in fruits, vegetables (including specific subgroups, such as dark green and orange vegetables as well as legumes), whole-grain foods, fat-free and low-fat dairy, foods low in sodium, and foods with zero grams of trans fats.[33] These requirements are operationalized through the meals provided as part of the National School Lunch Program, including the School Breakfast program, available in public and nonprofit private schools. School districts receive reimbursement from the federal government for these meals provided as well as subsidies on the foods to prepare these meals. Federal law also requires all schools participating in the National School Lunch Program to establish a local school wellness policy for all schools under their jurisdiction.[34] Furthermore, in 2014, the US Smart Snacks standards restricting the sales of competitive foods, including vending machines and a la carte items at the schools, went into effect.[35] This further reinforced state-level policies restricting the availability and competitive sales of foods of minimal nutrition value (FMNV), such as candy, cookies, chips, frozen desserts, and beverages, limiting the number of grams of fat and sugar served to school children, and phasing out deep frying in the schools. Most states also require school districts to have a School Health Advisory Council (SHAC) that consists of parents and community members who review and recommend school health policies for children. The SHAC recommendation is then reviewed by the school district board for approval.

Supportive policies at the school level also exist, such as restricting the number of events during the school year at which schools can provide FMNV and specifying that these FMNV are not available or consumed during meal times. Parents must comply with public school nutrition policy guidelines around snack provision (i.e., snacks may not contain FMNV) for their children, as well as guidelines around no fundraising by parent-

teacher organizations in the schools using food during the school day. Other policy-relevant efforts to improve children's diet include improving nutrition education curriculum standards. Several evidence-based strategies exist for implementing coordinated school health programs to be taught in the schools as part of health education curriculum.[36] These evidence-based programs enhance opportunities in the schools for healthy eating and physical activity, and these programs also engage parents. However, such evidence-based strategies need to be adapted to the Indian culture and community and then evaluated for effectiveness. Schools would also need to invest in teacher training for implementing such strategies. Finally, surveillance and screening for ongoing implementation and success of these policies are recommended.

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