

## A Parental perspective on School Children's Dietary habits, Nutrition and Health outcomes

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### Abstract

The World Obesity Federation predicts that by 2030, 6.2% of adolescents aged 10-19 will be obese, and 10.81% of children aged 5-9 will also be obese. In India, it is estimated that over 27 million children will be obese. It is important for children to have a balanced diet and exercise regularly to maintain a healthy weight and proper development. The quality of nutrients that children consume can significantly impact their health, growth, and functions. This study provides insights into the eating habits and preferences of school-aged children, the prevalence of junk food consumption, and parental concerns. Junk food is appealing to children because of its taste, affordability, and convenience, and its negative impact on health is not always understood. To promote holistic development, physical activity is essential for children's physical, social, and mental well-being. Nutrition advice can also facilitate the adoption of healthy eating habits in the long term.

**Keywords:** Child Junk food, Consumption pattern, Childhood Obesity, Diabetes Prevention.

### Introduction

An annual health survey conducted under the stewardship of the Ministry of Health and Family Welfare, Government of India, “**National Family Health**

**Survey (NFHS) 2019-21**”, is the most comprehensive survey to date on the health and nutrition indicators of India's men, women, and children. This survey demonstrates India has seen no

significant improvement in health and nutritional status among its population. The latest data shows that obesity is on the rise in the majority of states and union territories. The problem appeared more concerning in children. Obesity among children under the age of five has increased, with 33 states and union territories reporting an increase in the number of overweight youngsters. The proportion of overweight children grew from 2.1 % in NFHS-4 to 3.4 percent in NFHS-5.

Good health is vital for children because they are more vulnerable at risk to illness and health complications. When children are safe from disease, they can grow into healthy adults, and in this way, contribute to the development of dynamic and productive societies.

The relationship between nutrition, health, and learning is undeniably strong. Nutrition is one of the three major factors that impact a child's development, other factors are genes and environment. Children need adequate nutrients to stay healthy and strong which influences directly their growth & immunity.

The most important benefits of early childhood nutrition are; first, it helps in building immunity against various infectious diseases; second, ensures proper development of the brain and other vital organs; and third, improves a child's activity levels and cognitive functioning. Therefore, proper nutrition for children is important as it sets the stage for them towards living a healthy and balanced life for the rest of their lives.

Healthy eating is essential for your child's good health, growth and development. Healthy eating in childhood means they will have less chance of developing chronic diseases like obesity, type 2 diabetes, hypertension, and heart disease.

Childhood obesity is one of the most important public health challenges the world is facing today. The problem is global and is slowly acquiring epidemic proportions. In India too, the prevalence of overweight, as well as obesity among children and adolescents, has shown an increasing trend in society. It is because the majority of today's children are living in an obesogenic environment<sup>(7)</sup>.

Children often crave processed fast food, sweets, and chocolate, which are loaded with sugar and unhealthy fats. Not only can these types of food cause weight and health problems, but they can also make children feel sluggish and unmotivated. Their inclination to fast foods and sugar-sweetened beverages and preference for screen games over outdoor games are leading to energy imbalance and increasing obesity which, once acquired, persists during adulthood and the rest of their life.

In junk food, the fat used for flavouring and seasoning accumulates in the children's bodies and may lead to low energy levels. Low energy levels fallouts to a lack of physical activity, resulting in childhood obesity and an increased risk of non-communicable diseases like diabetes, hypertension, and heart disease. Sweet beverages contain high amounts of sugar. The high sugar content may increase the risk of malfunction of

insulin secretion and may result in type 2 diabetes during childhood or at a later age (Vangal Krishnaswamy Sashindran and Dudeja Puja, 2019).

Therefore, childhood is the critical time to detect overweight/obesity and start preventive action towards the menace of non-communicable diseases.

According to World Obesity Federation, by 2030 prevalence of childhood obesity among the 5–9-year age group will be approximately 10.81%, and the prevalence of obesity among teenagers in the age group of 10-19 years will be 6.2%. India is expected to have over 27 million children with obesity.

Childhood obesity is a matter of serious concern because children who are overweight or obese grow up to be overweight or obese adults. Besides, it is associated with a wide range of health complications and an increased risk of premature onset of illnesses, including diabetes and heart disease. Childhood diabetes is reaching alarming proportions and is currently one of the most important public health problems.

Childhood obesity is also a strong predictor of adult obesity, which can have serious health and economic consequences.

Encouraging children to eat fruit, vegetables, and other whole foods will provide essential vitamins, minerals, fibres, and proteins, which are all crucial for overall growth and development.

To stay healthy and maintain a healthy weight, children need to be physically active and eat the right amount of nutrients to balance the energy they use.

### **Scope and significance of the Study**

The study has been carried out on the awareness of child nutrition habits, health outcomes, and good health practices among school-going children.

The study covers a survey with a structured questionnaire for the parents of school-going children in Delhi. The survey will help in understanding the preference for junk and fast food over home-cooked food among school-going children.

As the prevalence of preference for fast food and junk food increase among children leads to an increase in the chances of obesity among children. Childhood obesity increases the risk of early type 2 diabetes, blood pressure, hypertension, etc.

The study also tries to understand parental perspective on their school-going children and also generate awareness for a balanced diet and the importance of physical activities that are very simple to perform and can easily be fitted into a daily routine.

### **Objectives of the study**

Objectives of the study are:

1. To understand the eating habits and preferences of school-going children in Delhi.
2. To check the consumption of a balanced diet (cereals, fruits, vegetables, pulses, milk and milk products, and meat, fish, and eggs) by school-going children.
3. To assess the consumption of packaged and non-packaged food

and beverages on a daily, weekly, or monthly basis.

4. To examine the engagement of physical indoor and outdoor activity of school-going children.

### Literature Review

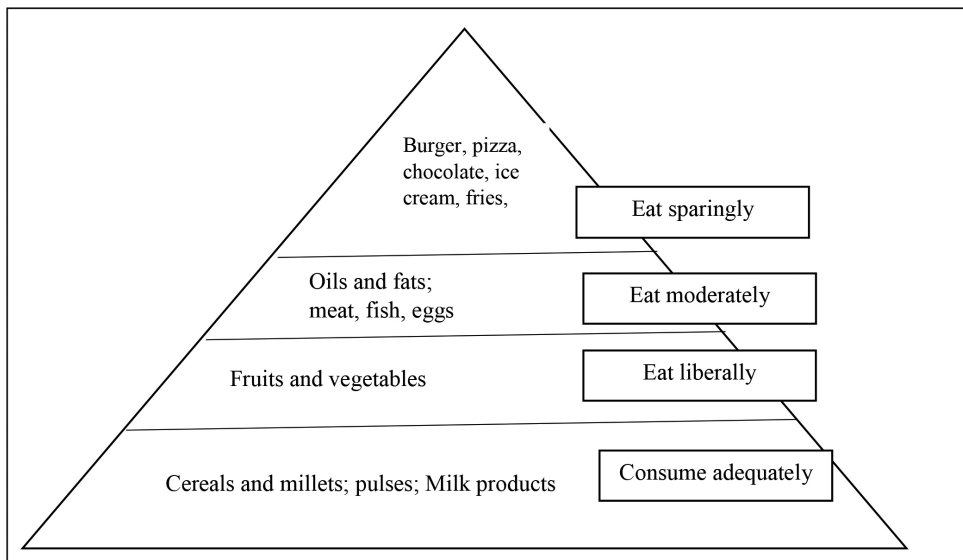
#### A balanced diet, junk food, and non-communicable diseases

As per the 'Dietary Guidelines for Indians, 2011' of the National Institute of Nutrition (NIN), "The balanced diet delivers all nutrients in required amounts and proper proportions. It should consist of around 50-60 percent of the total calories from carbohydrates; about 10-15 percent from proteins; and 20-30 percent from both visible and invisible fat. In addition, it should have other non-nutrients such as dietary fibre and antioxidants that bestow positive

health benefits. Micronutrients such as vitamins and minerals are necessary for physiological and biochemical processes to acquire, assimilate and utilize food to maintain health and activity. Dietary fibre helps in delaying the absorption of carbohydrates and fats and increases the satiety value. The guidelines depict the importance of foods through a 'Food Pyramid' (see Figure 1: The NIN food pyramid). A balanced diet is recommended through a blend of four basic food groups such as cereals, millets, and pulses; vegetables and fruits; oils, fats, and nuts; and milk and animal foods.

Notably, food items such as burgers, pizza, fries, chocolates, ice cream, jam, etc are not considered the right choice to meet nutrient needs and must be eaten sparingly".

**Figure 1:** The NIN food pyramid



**Source:** Dietary Guidelines for Indians, 2011, National Institute of Nutrition (NIN)

According to National Health Planning, Government of India “children are more inclined towards junk food but it is very important to motivate your kids in teenage to eat nutrition-rich foods. Many children have poor eating habits, which can lead to various long-term health complications, such as obesity, heart disease, type 2 diabetes, and, hypertension. As a parent, there is a need to make frequent changes in children’s food menu to avoid the boredom of eating the same food every day. In addition to the consumption of a nutritious well-balanced diet, appropriate lifestyle practices and involvement in outdoor activities such as games/sports should be encouraged among children. Regular physical exercises will help in increasing strength and stamina and are necessary for good health and well-being”.

According to guidelines for Parents, the Indian Academy of Paediatrics, “Poor nutrition can result from a lack of food or wrong food choices. Overeating is also a part of poor nutrition and is equally harmful in long run. Healthy nutrition in early life will empower us to have a healthy and disease-free future, which will improve the overall outcome of growth and intelligence of our future population. Children should avoid junk foods, ultra-processed foods, nutritionally inappropriate foods, carbonated/cafeinated drinks, and sugar-sweetened beverages (JUNCS) because these are high in salt, saturated fat, and sugar, but low in fibre and nutrients. The risk of childhood obesity

and type-2 diabetes increases when children regularly consume JUNCS”.

### **Childhood obesity**

According to a report published by Narayana Health (2019), “Childhood obesity is now an epidemic in India. India has the second-highest number of obese children (14.4 million) in the world, which is next to China. The prevalence of overweight and obesity in children is 15%. In private schools the incidence of childhood obesity has shot up to 35-40%, indicating a worrying upward trend. Obesity is defined as an abnormal and/or excessive accumulation of fat that can impair health. Body mass index (BMI), calculated by a person’s weight in kilograms divided by the square of his/her height in meters ( $\text{kg}/\text{m}^2$ ), is the most commonly used measure of overweight and obesity in adults and children over 5 years of age”.

The WHO, UNICEF, and Non-Communicable Diseases Risk Factor Collaboration (NCD-RisC) data, World Obesity Federation (WOF) published the first global atlas on childhood obesity in 2019, “provided that the latest estimates of infant, childhood, and adolescent obesity in 191 countries. It also evaluates the prevalence of obesity in children by 2030 and the probability of achieving the WHO target of “no increase in obesity prevalence by 2025”. Constructed on the contemporary number of 158 million children (5-19yrs) living with obesity worldwide, this report estimates that by 2030 this number could rise to 254 million. (Table 1)”.

**Table 1.** Indian data from the childhood obesity atlas

Latest: % Infants overweight	2.4	
	Boys	Girls
2016: % children aged 5-9 with obesity	3.7	2.6
2016: % children aged 10-19 with obesity	1.8	1.1
2010: % adolescents with insufficient physical activity	69.6	71.6
Projections for 2030		
	Percentage	Number
Predicted 2030: children aged 5-9 with obesity	10.8	12,692,004
Predicted 2030: children aged 10-19 with obesity	6.2	14,789,136
Predicted 2030: number of children aged 5-19 with obesity	27,481,141	

**Source:** The childhood Atlas, 2019

**Table 2:** Variables identified from the literature review

Authors	Study	Research Issues	Variables/ Themes for the questionnaire
Centre for Science and Environment (2017)	Burden of packaged food on schoolchildren based on the case survey 'know your diet'	Understand the eating habits and preferences of Indian schoolchildren in the age group 9–17 years.	Age of children, snacking preferences, frequency of eating packed food.
Indian Academy of Paediatrics (IAP) (2021-22)	Guidelines For Parents "Healthy Eating and Junk Food"	Generating awareness for healthy eating and avoiding junk food.	Consumption of dairy products, folic acid, and foods are given to a child as good nutrition
The paediatric and adolescent nutrition society (nutrition chapter) of the Indian academy of paediatrics (2019)	Indian Academy of Paediatrics Guidelines on the Fast and Junk Foods, Sugar-Sweetened Beverages, Fruit Juices, and Energy Drinks	Drafting a guideline for children and adolescents because of the increase in consumption of junk food and sweet beverages.	Regularity in consumption of packed food and beverages by school-going children, restrictions for packed food on children, and concerns of parents

Kaur Khushpreet, Patney Sunita, Mathur Dr. R.G.  (2019)	The pattern of Junk Food Consumption and its Relationship with Body Mass Index, to Develop and Evaluate the Effectiveness of Information Booklet on 'Harmful Effects of Junk Food' among Adolescents	Generating awareness for harmful effects of junk food among adolescents.	Physical activity duration, how the school can help students.
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### Research Methodology

**Research Design:** The study followed an empirical approach that involves systematically collecting and recording statements of school-going children's parents about their eating habits. This study adopted an exploratory study and descriptive research design. It was a cross-sectional study based on a quantitative and qualitative research approach to assess the factors associated with bad nutrition leading to obesity and diabetes in children.

**Questionnaire Design:** The questionnaire consists of different sections of questions related to the variables under study and these variables are mapped to the objectives so that we obtain what we are trying to find out from the respondents. The research objectives and the variables/themes for the study emerged from the research gaps identified from the literature review, past research surveys, and focused group discussions with a sample of respondent parents.

The factors/ items are used in the weighted importance scale (Likert Type Scale, from very much=5 to not likely=1)

marked by the parents of school-going children for each questionnaire as per their perceived importance.

**Sources of Data:** The researcher collected data by getting questionnaires filled up from chosen parents of school-going children in the Delhi region. This helped to do the quantitative analysis. The face-to-face interaction and interview note to ascertain the reasons for the response helped us to get deeper qualitative insight from parents' perspectives on their children's eating habits and inclination toward junk food.

The researcher has referred to various Journals, Magazines, Reports & websites related to the importance of a balanced diet for the early age of childhood, the causes of childhood obesity, and health-related complications due to childhood obesity.

**Sample Design:** For the population under study, a representative sample of at least 100 parents of school-going was chosen from different regions of Delhi. The study period is from July 2022 to October 2022. Around 70 filled responses were found acceptable. The parents were approached and depending

upon their availability and they were requested to respond. The study selected localities, one block/per area where schools exist on random bases parents were selected and studied as a whole. All selected study areas included all the parents of children between 3+ years to 14 years old wherever they lived.

**Analysis and Discussion**

A pilot study consisting of 10 parents was done. This helped to clarify the factors in the questionnaire for the main study. The descriptive method of result analysis was used. The excel spreadsheet was used to derive the tables and the bar graphs for analysis and interpretation.

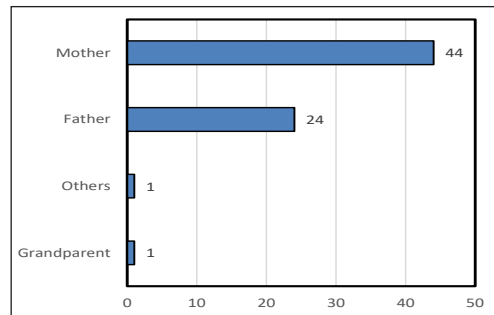
The method of averages was used to understand the relative importance of the factors. The weighted average marks were then calculated based on a percentage of responses in different categories of importance multiplied by their respective weights and the total gave their relative average out of a maximum of 5 to find out important factors influencing prescription behaviour.

In this study, it has been observed mothers (Graph 1) are the main respondent for the children's eating behaviour.

It has been observed during the study, there is a fondness for salty snacks and sweets among children but parents have made sure that sure one or more fruit/s should be added to their daily snacking routine which is depicted in graph 2.

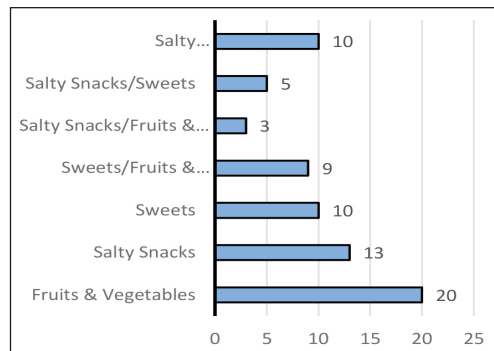
Many parents are not allowing their children to drink packed juices but it has been observed fresh juice and

**Graph 1: Respondents**



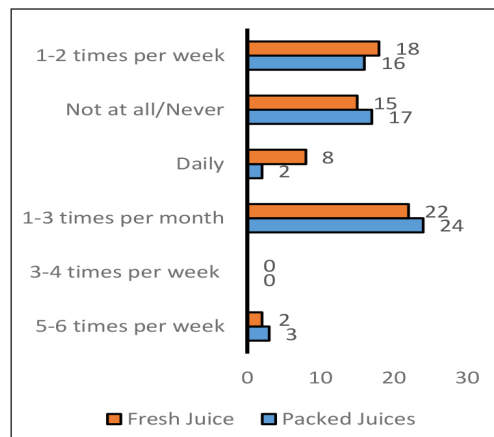
Source: Researcher's survey

**Graph 2: Snacking preferences**



Source: Researcher's survey

**Graph 3: Frequency of packed and fresh juice intake**

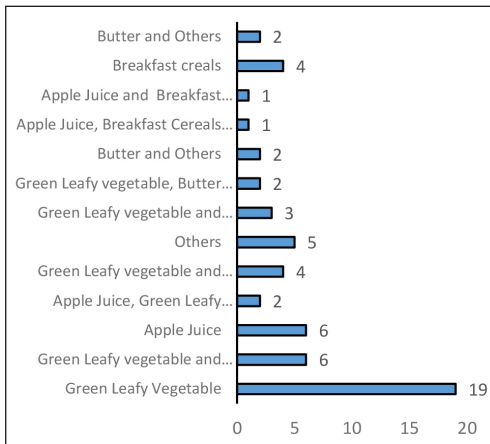


Source: Researcher's survey



packed juices are very much penchant among children. In the market, there are various types of juices are available like regular and cold press juice. According to parents, there is adulteration in fresh juice available in the market and this is the reason they prefer packed juice if their child insists much on the juice.

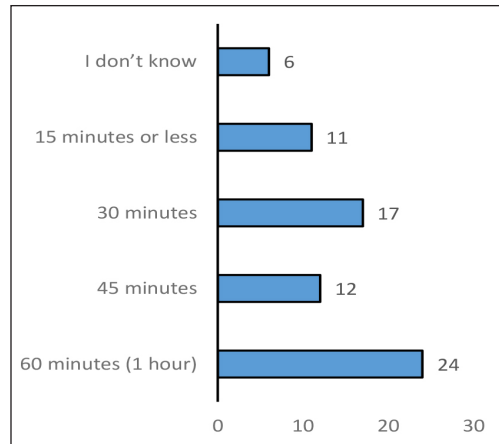
**Graph 4: Sources for folic acid**



Source: Researcher’s survey

Folic acid plays a very important part in children’s growth and during the study, it has been observed parents are very watchful for the different sources of folic acid like citrus fruits, dal, egg, legumes, etc., but green leafy vegetable is most common folic acid source using by parents.

**Graph 5: Duration of Physical Activity**

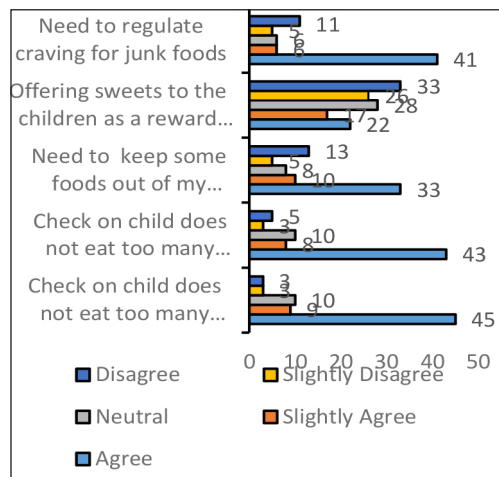


Source: Researcher’s survey

It has been observed many parents have enrolled their children in sports where they have trailed their favourite sport but many parents are not in favour of joining sports because their child does not have much time to pursue sports activity as their children are either in higher secondary school or have joined coaching classes for studies.

It has been observed during the study parents are very observant of their children’s eating habits. According to parents’ junk food is the most easily available food these days in the market. Despite of putting restrictions by parents it is still very collective in the

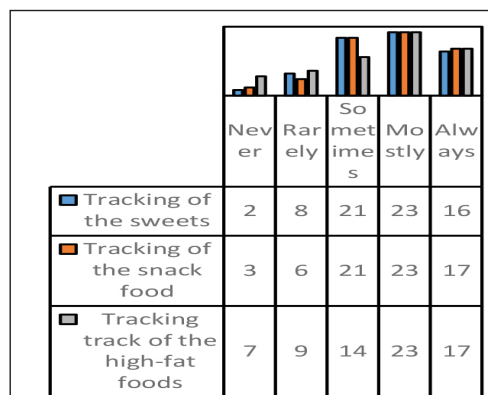
**Graph 6: Restrictions putting on children**



children and eating junk food is the first preference of children.

These days junk food plays a very important role in modifying the behaviour of the kids and parents are giving junk food or sweets as a reward to children for their good behaviour. In a way, they are encouraging junk food without their knowing it.

**Graph 7: Monitoring eating junk food behaviour**



**Table 3: Parents' Opinions on wellness policy in school**

Rank	Need for school wellness policy	Average
1	Implementing a school wellness policy helps improve the health of the students	4.5
2	Teachers and coaches are better educated if a school wellness policy is implemented	4.4
3	Implementing a school wellness policy helps improve academic performance	4.3
4	School food service staff need to learn new cooking methods if a school wellness policy is implemented	4.3
5	School wellness policies help to increase students' attendance	4.2
6	School wellness policies reduce the amount of money made from vending machines	3.9

Source: Researcher's survey

As claimed by parents' school plays, a very important role in children in development and there should be a wellness policy in schools where they teach children the importance of a healthy diet and physical activities.

Parents ponder that, chefs in the school canteen should be trained to cook healthy meals for the children and teachers should discourage them from eating junk food instead of suggesting putting limits on junk food.

Parents think about generating awareness for physical activity/exercise. Parents and school teachers should educate children about good food and the need for daily physical activities. Physical activity should be done at least 10 minutes daily.

Parents surf the internet for checking new ways of cooking vegetables without losing the nutritional value of a food. So that their children will love homemade food than craving market food.

In the opinions of parents, there is a need for generating awareness for having a healthy diet during childhood can help reduce the risk of developing chronic diseases, such as obesity, type 2

diabetes, and heart disease. It will also help them concentrate & learn better and proper nutrition plays a role in promoting better sleep-in kids.

### Research Findings

Objectives	Outcomes
To understand the eating habits and preferences of school-going children in Delhi.	This has been noticed parents are trying to give healthy and balanced meals to their children but the prevalence of junk food in the market is deeply enrooted, and they are failed to eliminate junk food from their children's daily routines.
To check the consumption of a balanced diet (cereals, fruits, vegetables, pulses, milk and milk products, and meat, fish, and eggs) by school-going children.	Parents are very watchful towards the diet of their children. Parents have cultivated a habit in their children of eating one or two fruit/s daily.  Parents also consider eating vegetables (cooked or raw) as a good part of nutrition.
To assess the consumption of packaged and non-packaged food and beverages on a daily, weekly, or monthly basis.	This has been recognised in the study, consumption of packed juice is more than fresh juice among school-going children.  The reasons commonly given by parents are 1) Easily available, 2) Parents think that they are not giving packed juice to their children regular basis. So, children can have one or two packed juices in a week or month, and 3) Most of the parents feel fresh juice available in the market is found to compromise quality like adding more water to juice or fruits are rotten.
To examine the engagement of physical indoor and outdoor activity of school-going children.	Most of the parents have enrolled their kids in a sports activity. There their child can do good physical activity and learn some discipline for their future.  Few parents feel whatever physical activity their kid has done in school is good enough. After school hours their children should study for college admissions. So, they don't have time to pursue any physical activity as they are engaging in after-school studies like studying in private tuition and self-studies.

Source: Researcher's survey

### Limitation of the Study

- 1) The study was conducted in Delhi perhaps a wider sample base could have been taken so that the results could have been more generalized. The sample size could have been larger.
- 2) The research was restricted to parents of school-going children.
- 3) Not all respondents have responded. So, the study cannot give 100 percent accurate results.
- 4) Some of the parents were reluctant to communicate so the response could be a bit biased.

### Conclusion

From the above discussion, it is found that parents are equally responsible for the unhealthy food habits of their children, though they express concerns about children's eating habits. Parents give sweets or favourite food to their children as a reward for good behaviour.

The reason for popularity of junk food is extremely to most children because of its taste, comparatively lower price, and convenience (doesn't require any cooking or preparation). Since children typically do not understand how this kind of food negatively impacts their health, it can be quite addictive.

From the extensive literature review, it has been perceived some factors make fast food very similar to packaged food. Fast food, such as pizzas, burgers, fries, wraps, etc., is typically ultra-processed or made from ultra-processed packaged ingredients and is aggressively

marketed.

Children spend a significant amount of time in school. Schools can therefore act as important avenues where they can develop good eating habits. Teachers should counsel children about right and good nutrition. Nutrition counselling is one of the most effective tools for changing food habits and aware the adolescence regarding the harmful effects of Junk Foods and Beverages. Nutrition counselling can play an important part in promoting long-term healthy eating habits. Nutrition counselling aims to raise children's knowledge of the hazards associated with their eating habits, teach them how to eat a well-balanced diet that includes a range of foods, and teach them how to make wise food choices on their own.

According to WHO, "Children aged between 5 to 17 years should do at least 60 minutes of moderate to vigorous-intensity physical activity daily".

Physical activity includes play, games, sports, recreation, physical education, or planned exercise, in the context of family, school, and community activities.

Physical education is equally important to children's scholastic education. Keeping children physically active, being in the normal weight range, and lowering body fat can help children prevent some of the diseases that are prevalent on a wide scale. Maintaining good physical fitness can help children avoid heart disease and diabetes later on.

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