

Report on Nutrition Intake Status and Problems caused by Insufficient and Overmuch Intake

Siddhant Jhawar (Author)

Social Ambassador
Prarambh Foundation
Jaipur, India
Sidjhawar14@gmail.com

Kovid Oli (Author)

Advisor and Social Ambassador
Prarambh Foundation
Jaipur, India
idfkovid@gmail.com

Abstract— India is a young nation, and the source of the largest manpower in the world, however, the nation is also in the grip of many health issues, one of the most important of which is child malnutrition. Notably, one of the focal points of the SDGS (Sustainable Development Goals)-- child malnutrition affects children of all strata and economic status of the society. It could be due to either insufficient intake of nutrients, or even due to sufficient food that may still lack nutrients. To gain an insight in the state of Rajasthan, a primary research of 200 children from the age group of 6 years to 16 years was conducted, to understand what forms their meal pattern, and whether it is a cause of celebration or worry.

Children between the age group of 6 years and 16 years were randomly selected in two categories: Privileged child and Underprivileged child. The study was further divided into two subcategories: Boy and Girl nutrition intake and nutrition requirement. The study provided the analysis of the eating habits and the kind of nutrients consumed. It was found that in both categories, the food consumed was not as per the advised food intake. Gaps were found, and the report gave a direction for developing some behavior and communication material to help engage the children all over the city of Jaipur, towards a positive change in their eating habits.

Keywords—*food habits; undernourished diet; overnourished diet; nutrition; nutrients.*

I. INTRODUCTION

“A parent’s ability to provide healthy food to his/her children is not always tied to income, but rather to education”

From way back to the evolution of Homo-Sapiens, food, shelter and clothes are their basic necessities. Out of these three necessities food is the most important. We all need food to survive, to grow, to develop physically and mentally, to work at our optimal capacity, to build our defenses against infections, and to maintain good health. Life rolls around

what kind of food we take or more specifically on our ‘Food Habits’. ‘Food habits’, in general are culture specific, but in the last few decades dynamic changes have occurred due to the fast growing economy, a shift from traditional to modern technologies, globalization and industrialization, constant travels across the world, evolving tastes and increased demands for “fast” and processed foods throughout our country. In our country we have a large social divide, and because of that the results are varied. On one hand we have the privileged society where due to substantial increase in the intake of refined and processed foods such as white rice, ‘refined flour’ based items, sugars and salt, there are cases of ‘overnutrition’ related disorders such as obesity while on the other end we have underprivileged society where due to poverty and hunger there may be ‘undernutrition’.

Many surveys and studies have given us an idea and the purpose of action directed towards the malnutrition problem, but not many surveys deal with the improper ‘Food Habits’ of the children between the age group of 6 years and 16 years. Neither have most surveys addressed the problem of ‘OVERNUTRITION’ - which is the major cause of the 21st century diseases like obesity, diabetes, cardio-vascular diseases etc. The main idea behind doing this research was to find out the rapid nutrition transition due to increasing food availability and food purchasing power. This rapid nutrition transition has been characterized by the double burden of disease, whereby chronic diseases become more prevalent while infectious diseases remain undefeated.

Research Questions

The survey aimed to look at the following research questions-

- A. What is the type and quantity of food intake?
- B. What are the differences in the food intake between under privileged and privileged strata of the same city?

II. METHOD

A. Study design:

-This is a Non Experimental, analytical, cross sectional study

- The Unit of study is Children between age group 6 and 16 years

B. Area Of Study:

-Mission Compound, Civil Lines, C-Scheme and nearby areas for privileged class study.

- Shastri Nagar, Bhatta basti, Jaipur for underprivileged class study.

C. Source of Data:

Food Habit Study:

The basic data of food habits, height, weight etc. of the children were taken. For the underprivileged group, the data was collected from the slum areas in Jaipur and for the privileged group; the data was collected from the affluent families.

The two correspondents collected the data on a structured questionnaire- the tools of the data collection were- **Food Frequency Questionnaires (FFQ) and semi-quantitative FFQs** questionnaire.

Analytical study:

D. SAMPLE:

A sample of randomly selected 200 children from age group between 6 years and 16 years from different areas in Jaipur was taken. 100 children were taken from the slum areas and 100 children were taken from affluent families in Jaipur. The ones who did not wish to answer were excluded from the study, till the desired number was reached.

E. INCLUSION CRITERIA:

Children from age group between 6 to 16 years of age, who were not on any prescription diet due to a medical condition.

F. TOOLS OF DATA COLLECTION:

A closed-ended questionnaire was used to seek responses from the sample respondents and in case the child was unable to answer the questions, the response was sought from the parents.

G. LIMITATIONS OF THE STUDY:

The study was constrained by the limitation of time and cost and was restricted to some areas in the city of Jaipur. At the same time, individual capacity of researchers in exploring a

crucial social sector, i.e. malnutrition and over nutrition was understood as a challenging task.

Despite all constraints and limitations, the findings and conclusions derived thereof and suggestions and recommendations given at the end of the study would go a long way in improving and enhancing health habits of the children of the city and beyond. At the same time, the results of the study will be able to open new frontiers for young researchers to carry the research to other regions and states of the country.

III. RESULTS

A. PROFILE OF THE PRIVILEGED CLASS CHILDREN

Table 1 and 2 show the personal, family and demographic characteristics of the respondents. Out of a total of 200 respondents 50 percent of the respondents were from underprivileged society and 50 percent from the privileged society. In this study the number of boys' respondents and girls' respondents were equally divided. All 200 respondents were between age group of 6 and 16 years, however there was a random distribution of the age group between 6 and 16 years (showed in Table 1 and 2).

Age Groups	
6 – 9	21
9 – 12	27
12 – 14	28
14 – 16	24
Gender	
Male	50
Female	50
Family Income (%)	
3-4 Lakhs	38
4- 6 Lakhs	43
>6 Lakhs	19

Table 1

Age Groups	
6 – 9	19
9 – 12	29
12 – 14	32
14 – 16	20
Gender	
Male	50
Female	50
Family Income (%)	
<2 Lakhs	72
2-3 Lakhs	21
>3 Lakhs	7

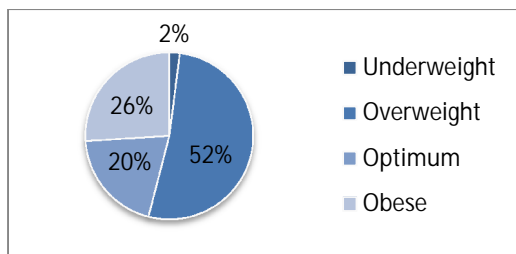
Table 2

B. Body Mass Index of the Children

The Body Mass Index or Quetlet Index is a value, which is derived from the mass (weight) and height of an individual. The BMI is defined by the body mass divided by the square of the body height, and universally expressed in units of kg/m^2 .

The survey pointed out that around 52 percent of the kids in the privileged category and 38 percent in the underprivileged were overweight, 26 percent in privileged and 23 percent were obese and only 20 percent in privileged and 30 percent in underprivileged were the optimum weight. Fig. 1 shows the pie chart of the division of the BMI.

Survey chart of 100 Privileged children:



Survey chart of 100 underprivileged children:

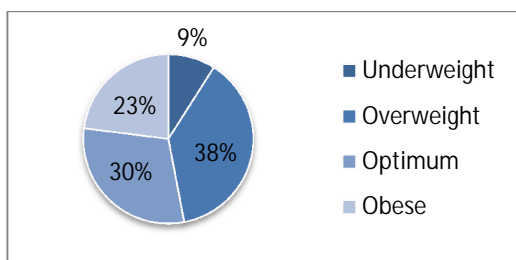


Fig. 1

- Survey is conducted for 100 underprivileged and 100 privileged kids between the age group of 6 and 16 years.
- Survey is divided between 50 boys and 50 girls in each category.
- Around 70 percent of total kids were overweight or obese in this category.
- It is found in the research that kids are eating an unbalanced diet in which fat and carbohydrate intake is very high and fibre and protein intake is very less.
- **Meals of these kids mainly include chips, bakery confectionaries, processed food, soft drinks, artificially sweetened drinks chocolates etc.**

C. FOOD CONSUMPTION PATTERN

Meal pattern (Privileged class)

Fig. 2 shows the frequency of meal consumption. Most of the children (around 64 percent) eat for more than 4 times a day. 36 percent of kids in this category eat for less than or equal to 3 times a day.

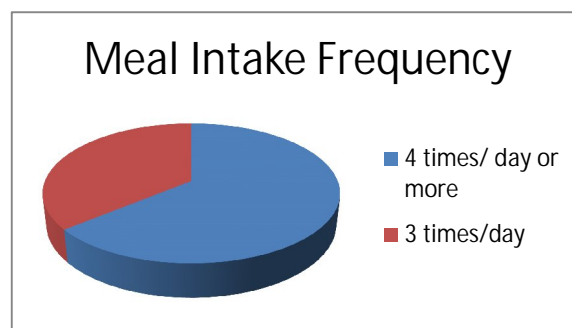


Fig. 2

Summary of findings from the food patterns

- In this category, the food patterns consisted of polished rice, breads, pulses, vegetables (for vegetarians) and chicken and goat meat (for non vegetarians) for lunch and dinner.
- In breakfast mainly the children were eating white breads with butter and jam. Few families used brown bread.
- The pulses, vegetables and non vegetarian dishes were mainly made from the refined oil. Only 12 percent of the families used olive oil or groundnut oil in the preparation of the meal.
- Children mainly took packed lunches for school, where the lunch consisted of breads, chapattis and around half bowl of vegetables.
- Fruits and raw vegetable consumption was found to be low. Average of 3-4 fruits/ week was taken.
- Consumption of milk products (like butter, cheese) was high.
- Consumption of sweetened drinks and soft drinks was very common.
- Other carbohydrate and fat-rich foods included chips, noodles, and bakery items eaten frequently, although they were sometimes considered as snacks.
- Consumption of sugar confectionaries like chocolates and toffees was also very frequent.

Meal pattern (Underprivileged class)

Fig. 3 shows the frequency of meal consumption. Most of the children (around 59 percent) eat for 3 times a day. 41 percent of kids in this category eat for less than or equal to 2 times a day.

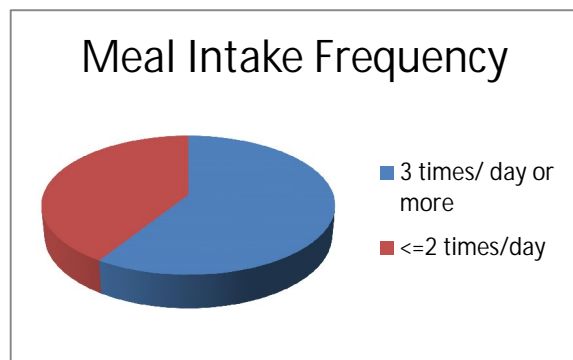


Fig 3

Summary of findings from the food pattern

- In this category, the frequency of food consumption is lower than the food consumption frequency of the privileged category but the intake of food per meal is higher in this category.
- In this category, the food pattern consisted of polished rice, wheat breads (roti), pulses, vegetables (for vegetarians) and chicken and goat meat (for non vegetarians) for lunch and dinner.
- Usually the children took 2 meals at home and 1 meal through the government mid day meal program. Sometimes the only meals were the mid day meal and the dinner.
- The frequency of meat consumption was found to be high in this category. The average meat intake was 4-5 meals/week.
- The pulses, vegetables and non vegetarian dishes were mainly made from the refined or non mustard oil. Usage of mustard oil was high.
- Fruits and raw vegetables consumption was very low. An average of 1-2 fruits/ week.
- Consumption of milk products (like butter, cheese) was also low.
- Consumption of cheap sweetened drinks and soft drinks was very common.
- Other carbohydrate and fat-rich foods included kachori, samosa etc.
- Locally prepared chips and other packed snacks (very unhygienic and unhealthy) were eaten very frequently.
- Consumption of cheap sugar confectionaries like toffees was also very frequent.

IV. DISCUSSION

Research suggests that the food habits (nutrient intake) in children have no proper relation with the nutrient requirements of the body. The children in both privileged society and underprivileged society have unhealthy food habits and the proportion of nutrients intake is not proper as defined in the dietary guidelines. The improper nutrient intake affects the growing children adversely.

Recommendations

Awareness must be created, in a way that engages the children, in a new and exciting manner. Instead of just telling them, that what they eat is not right, a solution based on the background of what is available needs to be provided. A **'Healthy Food Campaign'** can be started in various places, and areas of the city. Not just the children, but the parents should also be involved so that the impact is sustained.

V. ACKNOWLEDGMENT

We feel indebted to the Hon'ble Health Minister of Rajasthan, Shri Rajendra Rathore for his blessings and the Senior Officers of the Health Department, Government of Rajasthan.

We are grateful to Dr. M. L. Jain (Director, SIHFW- State Institute of Health and Family Welfare), Dr. Sanjaya Saxena, Registrar-SIHFW for their encouragement and guidance to start the project.

We are also grateful to have Mr. Sandeep Edwin, President, Prarambh Foundation as a mentor, who made conscious efforts in developing the idea of this study on food habits and guided us throughout the project work and report writing. We also want to thank Mr. Abhishek Shekhawat, for helping data recording, tabulation, analysis etc.

Finally we are thankful to the people of Jaipur for sharing their experiences and making this study meaningful.

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