

Report on

# **KAPP Study on At-Home Fortification of Complementary Food among the Under Five Children in Bangladesh**

Submitted to:

Social Marketing Company (SMC)  
SMC Tower, 33 Banani C/A, Dhaka – 1213

Submitted by:

**nielsen**  
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The Nielsen Company (Bangladesh) Ltd.  
House 70, Road 15A, Dhanmondi R/A, Dhaka 1209

Date: August 3, 2008





August 3, 2008

Mr. Toslim Uddin Khan  
Head  
Research & MIS  
Social Marketing Company  
SMC Tower  
Banani, Dhaka

Re: Final report on *KAPP Study on At-Home Fortification of Complementary Food among the under Five Children in Bangladesh*

Dear Mr. Khan:

Please find attached 10 copies of the final report on *KAPP Study on At-Home Fortification of Complementary Food among the under Five Children in Bangladesh*.

Should you have any queries, please feel free to contact us.

Yours sincerely,

A handwritten signature in blue ink, appearing to read "Khalid Hasan". The signature is fluid and cursive, with a long horizontal stroke extending to the right.

Khalid Hasan, PhD  
Managing Director

**KAPP Study on At-Home Fortification of Complementary Food among the  
under Five Children in Bangladesh**

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## Abbreviation

<b>BAR</b>	Barishal
<b>CTG</b>	Chittagong
<b>DHK</b>	Dhaka
<b>FAO</b>	Food and Agriculture Organization
<b>IDA</b>	Iron Deficiency Anemia
<b>IDI</b>	In Depth Interview
<b>ILSI</b>	International Life Science Institute
<b>HNPSP</b>	Health, Nutrition and Population Sector Program
<b>HSC</b>	Higher Secondary School Certificate
<b>KAPP</b>	Knowledge, Attitude, Perception and Practice
<b>KHU</b>	Khulna
<b>MDG</b>	Millennium Development Goals
<b>MHI</b>	Monthly Household Income
<b>MI</b>	Micronutrient Initiative
<b>NNP</b>	National Nutrition Program
<b>OTC</b>	Over the Counter
<b>RAJ</b>	Rajshahi
<b>SMC</b>	Social Marketing Company
<b>SSC</b>	Secondary School Certificate
<b>SYL</b>	Sylhet

## EXECUTIVE SUMMARY

### INTRODUCTION

SMC is initiating to launch "Sprinkle", a simple and convenient way of home fortification of food for infants and children, to address the Iron deficiency anemia (IDA) in under 5 years children. An 1 gm sachet of sprinkles is enriched with 12.5 mg Iron and 16 mg folic acid, It also contains 5 mg Zinc, .3 mg Vitamin A and 30mg Vitamin C for better absorption of Iron. In lieu of so, SMC plans to launch a mass media campaign to promote awareness about devastating impact of IDA and educate how they can easily prevent IDA using the simple method of fortifying complementary food for infants and children at home. Before launching the campaign as well as products SMC intends to know current level of Knowledge, Attitude and Practice of the caregivers and parents of children under five years on at-home fortification of complementary food among the under five children of Bangladesh as well as perception of the community leaders and retailers in this regard.

### KNOWLEDGE & ATTITUDE

#### Understanding about Nutritious Food

With a view to have the detail information on the knowledge and perception of the parents of under five children, few questions were asked to reveal their perception on nutritious food, need of such foods for child's appropriate physical and mental growth. Most of the respondents used examples to reveal their understanding about nutritious food. *Shaak* (60.7%) and big fish (60.6%) followed by vegetable (54.7%), egg (49%) and milk (45.7%) were perceived to be the foods containing nutritious ingredients. Rice (18.9%), pulse (16%), fruit (16.5%) were also mentioned as nutritious foods. Perception showed similar pattern among different place of residence and divisions.

#### Perception on Child's Requirement of Nutritious Food

The parents/caregivers perceive that their children require nutritious food for *proper physical* (54.3%) and *intellectual growth* (25.9%) as well as for *staying well* (37.6%). *Getting energy, nutrition, preventing disease and having proper mental growth* were among the mentioned reasons. Responses of urban and rural respondents showed similar pattern.

#### Foods that Contain Iron

In lieu to estimate the probable interest of the parents to use sprinkles like product they were asked specifically on their knowledge and perception on foods that contain iron. This was done with an intention to estimate the parent's knowledge about iron rich food, and their consciousness on the need of providing iron rich food to their child. The Parents came up with a long and diverse list in describing foods that contain iron. Some of the respondents specifically mentioned *Kochu Shaak* (27.3%) as a source for iron while another fifteen percent referred *shak* (14.5%) as the source of iron. About eleven percent respondents mentioned about vegetable while eleven percent more specified about green banana. Nearly one fifth respondents admitted their ignorance on the issue. There was substantial presence of

Nearly eighteen percent mentioned water containing iron, while such misconception being higher in the rural area (21%). About eight percent parents perceives that salt contains iron.

### **Food Required for the Physical and Mental Growth of a Child**

Fish (65.8%) followed by meat (40.4%), vegetable (40%), more specifically *Shaak* (39.7%) and egg (39.8%) were the major mentioned items required for physical growth of the child. Similar items were also perceived to be required for the mental growth of the children as well, while the parents emphasized on egg (56%) more for mental growth of the child. The parents also perceived breast milk (37.3%) and cow milk (32.3%) contributing to the mental growth of the child. It was revealed that the parents more or less ignorant or less conscious about the role of iron rich food attaining proper physical and mental growth of their child.

### **Source of Knowledge on Nutritious Food**

Television (61%) was found to be the main source for the parents for getting information regarding nutritious foods. Doctors (34%), neighbors (33%), family members (29%) followed by NGO (32%) and quacks were the other reported sources mentioned. The urban parents relied more on doctors (38%) compared to the rural ones (31%). While for the rural parents quack doctors (27%) played an import role in providing information regarding nutritious food required by the children.

## **IRON DEFICIENCY ANEMIA**

### **Awareness on IDA**

Nearly half of the parents (47.3%) claimed that they are aware about IDA, while the rest (52.7%) admitted their complete ignorance on the issue. Sixty one percent of the urban respondents were aware about IDA as against only forty one percent of the rural respondent claimed so.

### **Symptoms of IDA**

The parents who were aware of IDA were further probed on their knowledge on the symptoms of IDA. Pale skin color (67%) followed by skinny and thin looks (58%) were the main symptom of IDA known by the parents. More than one fourth (28%) parents referred this as yellowish skin color. Child not looking fresh (46%) and insufficient blood in the body (38%) was other mentioned symptom that led the parents recognizes IDA among their children.

### **Reason behind Iron Deficiency**

The parents have poor knowledge regarding the reasons that lead to iron deficiency. They perceive that nutritional deficiency (38.4%) and lack of vitamin (37.9%) were the major reported reasons behind iron deficiency. Nearly one third respondents (30.7%) perceive lack of good food as one of the reasons behind iron deficiency. Respondents of rural and urban areas reflected similar knowledge's and perception regarding the reasons behind iron deficiency. Only 12% could specifically mention lack of iron as a reason for iron deficiency.

### **Lack of Food that Leads to Iron Deficiency**

To create awareness among the parents regarding iron deficiency and how to prevent it, their level of knowledge and understanding about the iron rich food is very important. The findings reveal poor knowledge among the parents about food lack of which lead to iron deficiency. While reporting on the foods lack of which may cause iron deficiency, the parents listed egg (45%), fish (43%), *Shaak* (40%), vegetable (40%) and meat (36%). Very few percentage of parents could rightly mentioned about iron rich foods like *Kochu Shaak* (6%) or liver (2%).

### **Knowledge on Prevention of Iron Deficiency**

While asked how to prevent the iron deficiency the parents opined that providing ample amount of iron rich food (67.4%) may help prevent iron deficiency, though it was found that the parents have poor knowledge regarding the food that contain iron. Substantial percentage of parents also feels that being in regular touch with the doctor (37%) and providing necessary medicine (24%) may help prevent iron deficiency.

### **Source of IDA Prevention Treatment**

Doctors (66%) were the main source for the treatment of IDA of the child followed by hospital (25%). Nearly ten percent mentioned pharmacy as their source of IDA prevention treatment.

### **Attitude on Nutritious Food and Sprinkle**

The study attempted to investigate the attitude of the parents towards nutritious foods to gauge their potential interest on products like sprinkles. In such view the parents were asked their perception on the foods that should be in the regular food list of a child. The parents perceives that the fish (66%) followed by *Shaak* (53%), vegetable (53%) and egg (53%) should be in the regular food list of a child. Meat (37%), rice (31%), breast milk and cow milk were also mentioned by the parents which should be in the food list to ensure nutrition. Thus the findings reveal that the parents lack enough consciousness as well as knowledge to provide enough iron rich food in the daily routine of the child's food list.

### **Food Value Compulsory for a Children's Growth**

The parents were further asked on their perception on the food value that is compulsory for a child's growth. It was found that in general the parents hold very poor knowledge regarding the food value that is required for the child's growth. Only 16% parents could recall vitamin, while 8% referred protein. Only 2.4% mentioned about iron. Other food contains like carbohydrate, fat, and calcium was mentioned by ignorable percentage.

## **PRACTICE**

### **Instances of IDA**

The study attempted to investigate the presence of IDA among the target group's children. Only five percent parents admitted/could recognize the presence of IDA among their children.

### **Measures Taken for IDA**

Of those who could identify presence of IDA among their children were further probed on the action taken on identification of IDA. Nearly half of the parents (43.4%) reported that they had taken their child to a specialist doctor on identification of IDA for treatment, while nearly one fifth (22%) mentioned taking to a MBBS doctor.

### **Food Taken by the Child in Last Seven Days**

The parents were asked on their practice of complementary foods fed to the children. Rice (88%), fish (81%) followed by biscuit (75%), pulse (75%), green vegetable (75%) and *Shaak* (70%) were the main foods fed to the child in last seven days. Substantial percentage of parents had also fed breast milk (53.2%), meat (50%), moori (50%), cow milk (44%), banana (41%) and ata made food (41%) in last seven days. Thus the daily food routine of a child lacks iron-rich food.

## **OPINION ON SPRINKLES**

After having a detail discussion with the parents regarding their knowledge and practice of complementary feeding, parents were introduced the concept and benefits of sprinkles and asked their interest and intention of using such a product. All most all the parents (96%) expressed their positive interest for using such a product for their child.

The parents who expressed their interest on feeding sprinkles to their children were further probed on the reason for such interest. Most of the parents reasoned proper physical growth followed by intention of making the child more intelligent as the reason for their potential interest. Nearly one third parents also mentioned reasons like mental growth as well as intention to prevent iron deficiency.

On a further query all most all of these parents (99%) expressed their interest to continue sprinkles till sixty days. Majority (76%) of the parents opined TK.2 as a right price. While about ten percent parents found this price to be very high, another four percent opined it to be high. Groceries were the most preferred place for purchasing sprinkle like product.



## CONCLUDING REMARK

Thus the study finds that the parents are conscious about giving nutritious food to their children to ensure proper physical and mental growth. They have a list of food like fish, meat, vegetable, *Shaak*, and fruit in mind and perceive that providing this sort of foods will ensure proper physical fitness for their child. But they lack knowledge on the specific food contain as also lack the consciousness to give a proper and balanced diet according to the food value . They also lack knowledge on the foods that contains iron, as also lack the awareness to specifically address the need of iron containing food.

Thus extensive and preplanned mass media campaign is required to create awareness among the parents as well to make them educated regarding iron rich food, need of such food and consequence of not having enough iron rich food in the early child hood, thus leading to have a positive and accepting mindset to use sprinkles. Though the parents in general expressed a positive mindset to accept sprinkles, extensive knowledge and learning on proper and balanced diet, need of iron can turn them on to more convinced and conscious about using sprinkles for their children.

## INTRODUCTION

### 1.1 BACKGROUND INFORMATION

The commitment of the government to control anemia and micronutrient deficiencies is seen through its Health, Nutrition and Population Sector Program (HNPS) for 2003-10, in which the prevention and control of anemia and micronutrient deficiencies is one of the key strategies for reducing maternal, neonatal and childhood mortality and improving maternal and childhood nutrition. During the last 3 years, the government's National Nutrition Program (NNP) has been addressing micronutrient deficiencies in children and women through its community based interventions. However, it has been unable to address anemia in children due to the lack of a suitable micronutrient supplement. At a Nutrition Conference of the NNP held on 11 November 2005, the absence of a strategy to prevent and control anemia among children in the NNP was noted, and Sprinkles was suggested as a possible solution.

#### **Sprinkles – An Initiative of SMC**

Social Marketing Company (SMC) is the largest privately managed social marketing organization in the world for a single country. It is a significant contributor to the delivery of reproductive health services in Bangladesh. SMC's mission is to improve the quality of lives of vulnerable and less privileged populations primarily in public health through sustainable social marketing efforts in collaboration with national and international governments and donors. SMC aims to become a more results oriented organization with a more efficient management structure, more open communication channels at all levels, sounder financial management and planning capabilities, and a satisfying work environment for all its staff.

SMC plans to launch "Sprinkles", a simple and convenient way of home fortification of food for infants and children, to address the Iron deficiency anemia (IDA) in under 5 years children. An 1gm sachet of sprinkles is enriched with 12.5 mg Iron and 16 mg folic acid, which is recommended daily allowance by WHO and also proposed in the national guidelines for the Prevention and Treatment of Iron Deficiency Anemia of the IPHN, Government of Bangladesh. It also contains 5 mg Zinc, .3 mg Vitamin A and 30mg Vitamin C for better absorption of Iron.

SMC, therefore, plans to launch a mass media campaign to promote awareness about devastating impact of IDA and educate how they can easily prevent IDA using the simple method of fortifying complementary food for infants and children at home. Before launching the campaign as well as products SMC will conduct a study to know current level of Knowledge, Attitude and Practice of the caregivers and parents of children under five years on at-home fortification of complementary food among the under five children of Bangladesh as well as perception of the community leaders and retailers in this regard. This data will be used as baseline information.

In such light, SMC has commissioned Nielsen to conduct this study on fortified food which will indicate the level of knowledge, attitude, perception and practice (KAPP) pattern of parents and caregivers on home fortification of complementary food among the children of under-five years of age in urban and rural Bangladesh.

## **1.2 LITERATURE REVIEW: FOOD FORTIFICATION**

Food fortification - is one of the food-based strategies for preventing micro nutrient malnutrition. There has been a recent renewed interest in food fortification, largely because it is generally recognized as being the most effective way to eliminate dietary micro nutrient deficiencies, especially where micro nutrient multi-mixes can be used. In addition, fortification is socially acceptable, requires no change in food habits, does not change the characteristics of food, can be introduced quickly, has readily visible benefits, can be legally enforced, and is relatively easy to monitor, is the cheapest intervention for a government, and is sustainable.

Globally, the three deficiencies of greatest public health significance are those of vitamin A, iron and iodine. These nutrients are referred to as micro -nutrients because the body needs them in minute quantities for growth, development and maintenance. The deficiencies can lead to serious health problems, including blindness, mental retardation and reduced resistance to infectious disease and in some cases to death.

### **Global Issue**

Micro nutrient deficiency has become a global issue with emphasis in the developing nations. UN bodies like the Food and Agriculture Organization (FAO), UNICEF and other international agencies like USAID, The Micronutrient Initiative (MI), International Life Sciences Institute (ILSI), Helen Keller International etc. have taken massive steps to place "food-based" strategies for preventing micro nutrient deficiencies. It was emphasized to solve micro nutrient malnutrition problems in the World Declaration and Plan of Action for Nutrition adopted at the International Conference on Nutrition in December 1992.

### **Prevalence, Causes and Consequences of Micronutrient Deficiency**

Common forms of micro nutrient malnutrition:

- Vitamin A deficiency (VAD)
- Iron deficiency anemia
- Iodine deficiency

Other micronutrients found in food are:

- Vitamins such as thiamin, niacin, riboflavin, folate, vitamin C and D, minerals like calcium, selenium and zinc.

The primary causes of most micronutrient malnutrition are inadequate intakes of micro-nutrient-rich foods and impaired absorption or utilization of nutrients in these foods due partly to infection and parasitic infestation, which also increases metabolic needs for many micronutrients. Micro-nutrient-rich foods include foods that contain high levels of vitamin A (retinol) and its precursor (beta-carotene), iron (both haem

