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Nutritional Awareness among the Parents of Primary School going Children

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Abstract: The future of society depends on the quality of life of its children. The major objective of this research initiative is "to assess the level of nutritional awareness among parents of primary school going children", in low income class urban areas by assessing their knowledge of nutrition, and the quantity and quality of food they provide to their children. Primary school is a time when children are exposed to many influences outside of the family. Parents need to help their children build healthy foundations by encouraging a habit of consuming healthy foods and maintaining good nutrition throughout these formative and impressionable years. Due to multiple factors such as the easy availability of unhealthy restaurant meals, busy lifestyles of parents, and marketing pressures in a globalized world, children more often than not, do not get the proper nutritious meals that they deserve. These challenges to children's nutrition have implications for national economic growth, healthcare infrastructure and the overall mental, physical and social well-being of Bangladeshis. Nutritional awareness on its own means little without practice; hence this study utilizes parent's nutritional practices towards their children as a benchmark of their commitment to their children's nutrition.
Keywords: nutritional awareness, Nutritional, influence.

INTRODUCTION

Nutritional needs change throughout an individual's life, depending on genetics, rate of growth, daily activity, and many other factors. Nutritional needs also vary from individual to individual. 'Nutritional status,' hence is the condition of health of the individual as influenced by the utilization of nutrients, namely proteins, carbohydrates, fats, vitamins, minerals, dietary fibre and water.

Many attitudes towards food are shaped during early school years, forming the basis for future eating habits. Primary school years are busy ones and children need good nutrition to help them concentrate at school and to fuel their day to day activities. A primary school or elementary school is a school in which children receive primary or elementary education from the age of about five to twelve, coming before secondary school and after preschool. Their social life increases and peers can play a large part in forming attitudes towards food. They become more aware of food advertising and trends in the media, and while shopping. At school, the canteen offers the opportunity for children to make their own food selections; food and nutrition will also be discussed by some teachers as part of the school curriculum, however this later practice has been slow to develop nationally despite attempts by the Government of Bangladesh to induce acceptance.

Statement of the Problem

Sufficient nutritional awareness creates an environment of health and wellbeing for both parents and children. As the idea of nutritional importance is not new, it is of immense interest as to why malnutrition still remains a high cause of disease and illnesses all over Bangladesh. The reason is a lack of nutritional awareness. Parents in many circumstances know that it is important to serve nutritional food at home, but in many cases are unaware of what exactly constitutes nutrition. A lack of effort is many a times to blame as well for poor nutritional practices at home. Hence, this study has measured awareness, as it is interpreted into daily and weekly nutritional practice.

Significance of the Study

Nutritional awareness amongst the parents of children is perhaps one of the most important and defining factors influencing the health of children. It influences the child's nutrition intake at a time when the child is unable to make nutritional decisions for him or herself. Furthermore, the nutritional decisions that the child is exposed to throughout his or her early and formative years affects their nutritional preferences and understanding of nutrition in general for the rest of their lives. This may even influence how they provide nutrition to their children in turn. Hence, the importance of proper nutritional awareness is paramount.

Research Questions

Primary Question

What is the level of nutritional awareness amongst the parents of primary school going children from financially disadvantaged backgrounds?

Secondary Questions

- Is the nutritional awareness of parents a significant factor in determining the health status of their primary school going children?
- What are the consequences of improper nutrition resulting from poor nutritional knowledge on behalf of parents?
- How does poor nutrition at childhood influence adult nutritional practices?

Limitations of the Study

The study has assessed nutritional awareness using a self-administered questionnaire. Whilst the level of interview bias may have been minimised through this approach, the respondents nevertheless, may have responded based on what they thought were 'correct' responses, and not responses that more accurately reflected their regular nutritional practices at home.

Additionally, the responses may have been limited based on the geographical and demographic characteristics of the sample respondents, and may not have reflected the overall national nutritional awareness level amongst parents of children.

Scope of the Study

The report focuses on parents' behaviours towards their children's nutrition. The report acknowledges the credibility of nutrition practice at home over theoretical knowledge about nutrition. The researcher assumes that parents only practice what they are aware of; what they do not practice is a result of insufficient awareness about the consequences of malnutrition. The study assumes that parents will only practice what they genuinely believe to be the best for their children. As a result, the concept of practice being tantamount to awareness is firmly entrenched in the research rationale.

The is firm reasoning to not 'solely' study the level or depth of nutrition awareness among parents, as possession of factual knowledge about nutrition is not the final precursor to healthy nutrition practices at home. A realization of the consequences of malnutrition such as disease, stunted growth, poor cognitive capabilities, and overall jeopardy of health, is needed for individuals to be fully aware of the importance of their children's nutrition. To this effect, it is much more effective and revealing to inquire about the number of times children were allowed to take processed food every week, versus whether or not parents knew that processed foods were damaging to their child's health.

Objectives of the Study

The report inquiries into the nutrition practices at home, in regards to quantity and quality. Quantity relates to weekly tallies, whereas quality refers to food categories. It is within the scope of this report to know what kind of foods parents are feeding their children, how often, and under what circumstances. Hence, the report's objectives can be listed as the following:

- Identify the circumstances under which primary children in depressed urban areas receive their nutrition
- Identify household nutrition practices, through analyzing the foods that parents provide to their children on a daily basis, and foods which they do not
- Identify parent's attitudes towards how their children's food is sourced on a daily basis

Background of the Study

Malnutrition

Despite the increased public awareness of the vital role that dietary practices and physical activity have on health, the diets and physical activities of most Bangladeshi urban children are not consistent with medical recommendations, otherwise known as Dietary Guidelines. Most urban children eat too few of fruits, vegetables, and whole grains, while\consuming too much of fat, processed sweetmeats, processed deserts, sweetened beverages, and high sodium foods, such as salty chips and snacks. These trends are seen in the young and old, and cut across all income levels. All Bangladeshis, regardless of income, could benefit from dietary improvements, such as increasing the consumption of fruits, vegetables, and whole grains.

Nutrition is very important for sustaining human life, but it is especially important for children because it is directly linked to all aspects of their growth and development; factors which will ultimately have a direct effect on their level of health as adults. For example, a child with the right balance of omega fatty acids in their daily diet has a much better chance at creating a more solid foundation for their brain activity and capabilities later on in his/her life. Likewise, a child who practices a low fat and cholesterol diet on a daily basis significantly improves their chances of preventing a heart attack; even despite claims that heart disease tends to be hereditary within one's family. Providing children with the right knowledge about nutrition allows them to learn at an early age what's necessary for good health. This will also help to set them up for a life of proper eating and nutrition, almost certainly helping them to live longer. Countless studies show that what someone learns as a child is then perpetuated throughout their life.

Another important reason why good nutrition is especially necessary for children is because they simply don't know enough on their own to naturally choose to eat well. Unfortunately, the foods and snacks that taste the best are usually the worst for children's bodies, and a child left to their own will almost always choose readily available junk food (also known as comfort foods) over fruits and vegetables.

Parents can help promote a better quality of life for their children if they instill proper dietary habits in their children, allowing them to participate in more activities, and with greater enjoyment. As part of this, children are also able to fight off colds with improved efficiency with the support of proper nutrition. A vital point component of the debate is the level of communication parents enjoy with their children. Parents should always be on the lookout for different ways to make their children understand the necessity of avoiding an unhealthy diet. Practically, if parents could actually explain to their child that they won't have to suffer through debilitating illnesses nearly as much if they maintain a healthy diet, then the practice of maintaining a healthy diet may as well be adopted by children more readily.

The best way to encourage children to be active and healthy is to be a good role model. In a world heavily influenced by marketing and peer pressures, parents should help children sift through all the information on food they are receiving and lead by example. Additionally, the issue of taste gets left behind in the battle for nutrition, despite being at the core of the issue. Children often resort to comfort foods for its taste. Parents must remember that food is much more than simply something that is eaten three times a day. Parents should ensure that the food they provide to their children tastes good, enjoyable and palatable.

Hydration for children

The fact that water constitutes 1 of the 7 major nutrient groups, along with carbohydrates, proteins, fats, vitamins, minerals and fibre, is often overlooked. A healthy diet also includes sufficient intake of water, commensurate with the level of activity, sweating and ambient weather, depending on Bangladeshi climate. Children should be encouraged to drink water. In this day and age, water is often substituted with sweetened drinks such as soft drinks, cordials and colas [1]. If consumed in large amounts they can contribute to issues such as excess weight gain, diabetes and tooth decay.

Infants and young children (aged 4 to 13) have a higher proportion of body water than adults. They are also less heat tolerant and more susceptible to dehydration, especially when being physically active and in hot climates. Encouraging children to drink fluids regularly is particularly important in this context as children can be so involved in what they are doing that they forget to drink. Patterns of drinking behavior appear to be established early in childhood, so it is important that young children get used to drinking water and a range of other appropriate drinks in order to maintain hydration.

It is important that children drink regularly throughout the day to stay properly hydrated. However, drinking fluid is not necessarily seen as a priority by children, and even unfashionable (who would rather drink Cola), and may also be viewed as boring and inconvenient. Teachers and parents/guardians need to make sure that there are opportunities for drinking throughout the day for children and that they are encouraged to make use of these opportunities.

Macro vs. Micro Nutrition

Macronutrients are the structural and energy-giving caloric components of our foods that most of us are familiar with. They include carbohydrates, fats and proteins. Micronutrients are the *vitamins, minerals, trace elements, phytochemicals, and antioxidants* that are essential for good health.

The quantity and quality of these nutrients vary greatly, depending on not only what types of food you eat, but also the quality of those foods. Processed foods tend to have more macronutrients than natural foods at the expense of micronutrients. This is because processing food strips the foods of many of the vitamins, minerals, and phytochemicals and gives processed food a longer shelf life. Hence, cereal grains, breads, packaged sweets, much of fast foods and other processed foods possess significant amount of calories without much micronutrient content – and these eating practices are responsible for many of the lifestyle related diseases, such as diabetes, and kidney, heart, and liver failure that have burgeoned drastically and become common in Bangladesh in the 2000s. Interestingly, these diseases have started to inflict children as well, mimicking the experiences of western countries; as Bangladesh becomes a middle income country, and increased wealth, with the pressures of globalization, mean that Bangladeshis start emulating western lifestyle habits.

An eating pattern that includes a variety of foods, from across the food groups, will provide children with the range of nutrients they need. This means eating plenty of vegetables, legumes and fruits, and eating plenty of wholegrain cereals, including bread, rice, and also, pasta and noodles, to reflect more modern eating habits due to western pressures on Bangladeshi culture in a globalized world.

A healthy diet should also focus on including lean meat, locally available fish rich in fatty acids, and poultry, and dairy products such as milk, yogurt and cheese. A glass of milk is a nutritious drink that will contribute to the need for calcium required by growing bones. As one of the five food groups, dairy foods have an important role to play in a healthy diet. Dairy foods such as milk, cheese and yogurt contain at least 10 essential nutrients, including protein (with ten essential amino acids which the body cannot produce itself), carbohydrate, vitamins (A, B12 and riboflavin), and minerals such as calcium, phosphorus, magnesium, potassium and zinc [1]. Dairy foods are best known for calcium and the role it plays in building strong bones. Along with the rest of their body, children's bones grow

rapidly. A calcium-rich diet during childhood helps maximize peak bone mass and helps reduce the risk of osteoporosis and fractures in later life. Additionally, despite being largely preventable, tooth decay is still a very common health problem in children. In addition to good oral hygiene (regular brushing), good nutrition and eating habits play an important role in preventing dental disease [1]. Dairy foods have a specific role to play in dental health as they contain a unique combination of special anti-decay nutrients such as calcium, phosphorus and the milk protein, casein (milk protein).

LITERATURE REVIEW

The following sections and passages highlight past literature which the research author believes bears relevance to the subject of the study.

The case for proper nutrition

Children's diets can be influenced by a range of factors, including education environments (e.g., school or childcare) and media [2]. Parents however, not only influence these other factors, they also create the environment within which food is sourced, prepared, consumed, celebrated, resisted or refused [2,4].

Parents shape the development of children's eating behaviors in a number of ways, but particularly through parental feeding practices [5,7]; the "specific behavioral strategies parents employ to control what, how much or when their children eat,"[8].

Certain parental feeding practices are more likely to promote healthy eating patterns in children, while others are more likely to lead to unhealthy or disordered eating, [9]. For example, parental feeding practices associated with the development of healthy eating include: repeated exposure to healthy and novel foods, positive reinforcement (using verbal praise) for healthy food choices, positive social modeling and monitoring of highly-palatable, low nutrient foods, [10]. Parental feeding practices linked to weight gain, disordered or unhealthy eating behaviors include: restriction by either reducing child dietary intake or limiting snack food intake [11], pressure to eat [12], and non-nutritive instrumental practices, such as using food as a reward or to pacify, [10]. While parents tend to use these latter strategies with positive intentions, to encourage healthy eating or protect against weight gain, they can have unintended consequences on a child's food preferences, behavioral inhibition and self-regulation. Such feeding practices are therefore useful targets for preventive interventions aimed at improving parents' ability to foster healthy eating and healthy weight maintenance in their children, [13].

A key part of adopting a healthy lifestyle involves children seeing dietary attitude changes manifested positively and wholeheartedly by the people most important in their lives. Just as important as implementing good habits is that adults have conversations with children and provide opportunities for them to learn about eating nutritious foods and how that contributes to good health, [14].

In the United States, the Centers for Disease Control (CDC) reports that the prevalence of overweight in children is increasing, and obese children have a 70 percent chance of becoming obese adults, [15]. On the other side of the globe, India is also facing problems with obesity as a new middle class emerges. R.V. Bhavani, project director of the B.V. Rao Center for Sustainable Food Security, has said, "Junk food has entered the market, and urban schoolchildren and the middle class are more open to these kinds of foods. On one side we have this huge population of hungry and malnourished [children], but the manifestations of the problem of obesity and related issues are also surfacing. These foods are finding their way even to rural areas at a faster pace, so unless there is more awareness of the right kinds of food to consume, we are going to have problems, [15]."

Schools are in a unique position to promote healthy eating and help ensure appropriate food and nutrient intake among students. Schools provide students with opportunities to consume an array of foods and beverages throughout the school day and enable students to learn about and practice healthy eating behaviors. For example, as a healthy alternative to sugar-sweetened beverages, schools can provide students access to safe, free drinking water [16].

The Dietary Guidelines for Americans recommend a diet rich in fruits and vegetables, whole grains, and fat-free and low-fat dairy products for persons aged 2 years and older. The guidelines also recommend that children… limit intake of solid fats (major sources of saturated and trans fat acids), cholesterol, sodium, added sugars, and refined grains. Unfortunately, most children are not following dietary practices which are in compliance with the recommendations set forth in the Dietary Guidelines for Americans [36].

Hunger and food insecurity (i.e., reduced food intake and disrupted eating patterns because a household lacks money and other resources for food) might increase the risk for lower dietary quality and under nutrition. In turn, under nutrition can negatively affect overall health, cognitive development, and school performance [33-35].

Water as a Vital Component of Nutrition

Water requirements are related to the rate at which food energy is metabolized by the body. Energy metabolism is higher per kilogram body weight in children than in adults, and is much higher in boys, who are going through puberty, [17]. Consequently, children

need to drink more water in relation to their body size than adults do. It is for these very reasons that children need to keep topped up with fluids throughout the day.

In a recent 14-day water consumption survey of 164 children aged 11-12 years, only 6.1% drank water in the morning or sipped water during the day. Most (24.4%) drank water at lunchtime or in the afternoon (33.5%), indicating that children may not drink enough water in the morning, [18].

A French study also found that more than two-thirds of children of ages 9-11 years were inadequately hydrated when they went to school in the morning by assessing their hydration status from urine samples. The amount of fluid ingested at breakfast time was found to be inadequate in terms of being able to maintain suitable hydration levels for the morning period, [19]. This could have broader implications for learning. Research suggests that mild dehydration (1% body weight loss) can lead to reductions in concentration and mental performance in children, [20, 21].

Another survey has raised concerns that children aren't drinking enough when compared with the European recommendations for adequate intake, [22]. Approximately a third of 4 – 8 year olds drank less than the recommended value and over 50 % of 9 – 13 year olds weren't drinking enough, [23].

Studies suggest that children's mental performance can be improved when they are given access to water. In one study, 58 children aged 7 to 9 years were divided into two groups; one group followed their normal drinking habits, while the other was offered extra water (250ml). The results showed that children provided with extra water reported less thirst and performed better when visual attention tasks were carried out, [24].

Similarly, another study found that having access to a drink (a 250 ml bottle of water) significantly improved children's visual attention and fine motor skills in school such as their handwriting and ability to copy text, [25]. A study in 2012 also found that children's auditory number span (the number of items that can be repeated in sequence) was significantly reduced if they became dehydrated. Authors also found that drinking extra water (1,000 ml over the course of the day) at school helped to improve their short-term memory, [26].

National experiences with school nutrition programmes

The following sections detail past experiences with children's nutrition programmes in Bangladesh

A Pilot Study by GAIN: Community led Integrated School Nutrition Program

Starting from July 2012 and ending in June 2014, locally sourced, culture specific and nutritious hot meals have been served to approximately 18,000 of the most vulnerable primary school children. Meals were served every school day across 45 schools in urban slums in Dhaka, Bangladesh, and also in rural communities in Trishal and Mymensingh District. The locations were chosen based on a vulnerable mapping exercise and in joint consultations with Ministry of Primary and Mass Education and development partners namely, BRAC and Banchte Shekha, [27]. GAIN, the Global Alliance for Improved Nutrition (GAIN), an international organization driven by the vision of a world without malnutrition, supported the design and development of this pioneering school nutrition models with the following components.

At the beginning of the project, the partnership with Ministry of Primary and Mass Education started with the signing of one MOU between GAIN and the Ministry. GAIN facilitated the formation and meetings of a national level inter-ministerial steering committee to provide guidance and support for the project. GAIN developed a technical and operational manual which among other functions, included provisions for food supply chains, technical, costing and operational protocols. GAIN facilitated creating an enabling environment through engagement with senior policy makers and political leaders, [27]. BRAC research team provided technical support to the project monitoring and evaluation.

Mothers clubs were formed to manage and monitor the program. These clubs trained mothers of the children involved in the program on subjects such as nutrition, food preparation safety and hygiene. The program has been evaluated as a cost effective community led home grown nutritious food model, and an example of a unique effective program at integrating community ownership and support. The cost per Child per day is approximately 10.5BDT. The food contains 545KCL, 11.46grams of protein and regular use of iodized salt and Vitamin A enriched refined vegetable oil, [27].

The program was rolled out with following objectives: Firstly, reduce malnutrition by introducing the consumption of appropriate nutrition and calorie rich and culture specific food among primary school children, especially for poor school-aged girls, second, to increase school enrolment and retention in the mainstream primary schools, and lastly to demonstrate the feasibility of a cost effective model for scale up and replication. Findings at the mid-term of the Project showed increased rates of school enrolment and attendance, particularly among girls whose enrolment rates had increased by more than 40%. Water, sanitation and hygiene facilities have been built or repaired and innovative environmentally friendly stoves have been successfully utilized.

The program sought to reduce rates of childhood hunger and micronutrient deficiencies and, thereby, increase school enrollment and attendance. Upon achieving success, it was planned that the programme would be used to serve as a school-feeding model for the Bangladeshi government to implement around the country. However, no further developments regarding this issue have been produced by the government.

World Food Programme's Contribution to Bangladesh: The National School Feeding Programme

WFP has been working in Bangladesh since 1974, and has helped more than 155 million people as the agency strives to improve food security and nutritional well-being for the nation's poorest communities.WFP works with the Ministry of Primary and Mass Education to provide nutritious food to pre-primary and primary school children in disadvantaged areas to help the Government of Bangladesh achieve universal primary education [28]. The National School Feeding Programme, launched in 2011 and based on the WFP model, helps children in areas with high poverty and low primary-school completion rates to attend class and learn without feeling hungry. In 2015 this programme, with WFP's support, helped 2.5 million children. Concurrently, WFP provided food assistance to another 500,000 children in 4,300 schools [28].

As well WFP, in partnership with the Government, launched a joint school meals initiative in 2013 which provides students with a fresh meal made from fortified rice and oil, protein-rich pulses, and locally procured vegetables. This differs from the National School Feeding Programme, which offers micronutrient-fortified biscuits. The joint-project meals are reaching 20,000 students and help local women as well: some work as cooks, while others sell their garden produce to WFP [28].

International Trends

The issue of children's nutrition is not one solely bound to the developing world. Developed Countries in the west, such as the United States and European countries, including Russia, and in the south, such as Australia and New Zealand face similar challenges, particularly in the realm of poverty, poor food choices and obesity. The following 4 case studies present detailed analyses and experiences on children's nutrition in some developed countries of the world.

Child Poverty Action Group in New Zealand

Child Poverty Action Group (Inc.) (CPAG), a non-profit group formed in 1994, and made up of academics, activists, practitioners and supporters, has a strong education and research role which enables it to contribute to better informed social policy to support children who live in poverty in New Zealand. CPAG believes that the high rate of child poverty is not the result of economic necessity, but is due to policy neglect and a flawed ideological emphasis on economic incentives [29].

CPAG in their July 2011 report 'Hunger for learning-Nutritional barriers to children's education,' state that too many New Zealand children start their day without an adequate breakfast. The lack of food at the start of the day affects them at school and is a major barrier to their learning, and social progress and development.

While some children may not like breakfast and others may not have breakfast because their parents, for whatever reason, do not provide it, the major cause of the lack of an adequate breakfast for young children is, quite simply, poverty, [29]. This is well borne out by international and New Zealand research and that irrespective of the cause, children are not responsible for their poverty and there is a collective responsibility for ensuring that all children, regardless of circumstances, have the best possible opportunity at school [29].

For most families, inadequate income remains the central issue contributing to food insecurity; for households with budgets already stretched by rent and power, food remains one of the few expenses where savings can be made [29].

Wynd, 2011 reports that since the 1990s, schools in New Zealand have been stepping in to fill the gap in food provision left by inadequate household incomes. To get some understanding of what is driving schools to provide food, the method of delivery and what impact the schools themselves thought their food programmes had on the nutrition of children, in 2010 and 2011 CPAG conducted a survey schools, and conducted in-depth interviews with the principals (and where possible the coordinators of the food programmes) of schools providing regular breakfast programmes [29]. Schools talked about parents facing multiple stresses, with most trying to do their best under what are often difficult circumstances.

Issues highlighted were parents working long hours and/or multiple jobs, low incomes, lack of access to transport, and issues around housing including overcrowding and transience [29]. Schools also talked about a minority of parents failing to cope with the multiple stresses in their lives, up to and including feeding their children. The tension for schools is whether to usurp parental responsibility by stepping in and feeding their children or to make sure the children have eaten sufficient good quality food to learn [29].

Consistent with research from overseas, low-income families in New Zealand are more likely to be overweight or obese, and suffer from associated non-communicable diseases such as diabetes as a result.

This is in large part because highly processed, poor quality, calorie dense food is relatively satisfying when compared to fresh fruit and vegetables, and relatively cheap when compared to good quality protein. Two New Zealand studies show it is very difficult for many low-income families to regularly eat meals that meet even minimum New Zealand Ministry of Health nutrition guidelines for children [29].

There is now a great deal of research evidence that a good quality breakfast improves children's educational outcomes including test scores, as well as their school attendance and classroom behaviour, which in turn help their learning [29]. In CPAG interviews, schools reported improvements in children's health, which also feeds back as improved attendance and better learning. Equally important, there is an expanding body of research showing that breakfast can improve nutrient uptake and reduce the risk of children becoming overweight/obese [29].

A School Cafeteria Revolution in the City of Khabarovsk, Russia

A bold initiative in Khabarovsk, in Russia's Far East, has brought wholesale changes to the city's school cafeterias, with money being invested in cheerful renovations, healthy changes to menus, and new equipment for kitchens. As a result, pupils are now returning to cafeterias in droves [30].

Five years ago, the city began a revolution in school nourishment – first changes were made to the local budget, then Khabarovsk became a participant in an experiment ran by a corresponding national project led by the Government of the Russian Federation, and now all 78 schools in the city have undergone a culinary revolution [30].

The task of providing diverse, tasty food that meets all health standards has been made easier than ever, after having created a single plant where the cafeteria food is prepared. Although the city of Khabarovsk stretches a good 50 kilometers along the Amur River, the city has found an elegant solution."We have opened a chain of 78 school cafeterias, each at a cost of 5 million Rubles (*Approx. BDT 60, 00,000 or BDT Sixty Lakh*). Fully-cooked and semi-prepared meals are loaded into cars and transported to the educational institutions," explained Irina Vsevolodova, the Head of the Department of Education Administration of Khabarovsk [30].

School menus offer a multitude of options. Theculinary calendar is composed of 14 days, and during this period no dishes are repeated, meaning that the children see a particular dish only twice a month. On any given day children could be eating a salad of pickled vegetables with pea soup or Beef Stroganoff with boiled beef with rice, and stewed fruit for lunch [30].

Once a week for lunch, the schools offer a mandatory fish dish, either grilled fish or fish balls. On other days, they offer grilled poultry or another kind of lean meat. The first course consists of variations of healthy soups and borscht. Every day, the schools offer up to six different types of tasty salads. Fresh dairy products have been added to the menu, including omelets, curd cheese or yogurt, and are offered a few times a week, as a minimum, ensuring calcium and protein adequacy.

A pilot study into 'Nutrition Report Cards' by the Food and Brand Lab at Cornell University, America

Parents can easily assess their child's performance in school through academic report cards; however they are unable to assess their children's choices in the cafeteria. Accurate records of what foods students buy at lunch –for example "Nutrition Report Cards"— could give caregivers an inside look at lunchroom behaviors [31]. According to Cornell researchers Brian Wansink, David Just, Richard Patterson, and Laura Smith, even without any evaluation or grade based upon the nutrition of purchases, Nutrition Report Cards could inspire conversations about health and improve students' lunch choices [31].

The parents of 35 students, ranging from kindergarten to 12th grade, signed up to receive Nutrition Report Cards for their kids every day for five weeks via email. To create the records, researchers added three buttons to the school district's computerized registers so that cashiers could easily record the purchase of 1) Fruit/Vegetable items, 2) Heavy starch containing side dishes, and 3) White Milk. The registers also had pre-existing buttons that recorded a-la-carte items by name (such as cookies, chips, or ice cream), so those snacks were also able to appear in reports.

After the Nutrition Report Cards were implemented, participating students bought significantly fewer cookies than they had in previous weeks. They also bought fruits and vegetables more frequently and purchased flavored milk less often, though those results were not statistically significant [31].

Post-intervention surveys revealed that most parents saw the Nutrition Report Cards as an opportunity to talk to their children about nutrition. Because their kids were aware that their parents could observe their food purchases, the adults felt comfortable starting conversations about nutritional choices [31].

These Nutrition Report Cards can be implemented and maintained with very little additional time on behalf of the school. According to the researchers, the initial programming of a computer to record such categories as Fruits/Vegetables, Starches,

and White Milk requires just one hour. The actual use of the buttons to record purchases, however, only takes an additional 0.16 seconds per transaction [31].

A Case Study on Finland's successful school nutrition programme

Prue Leith, internationally known food expert and chair of the United Kingdom's School Food Trust, in an exclusive interview with Alice Abler, explained that some countries are generating awareness about nutrition and health by implementing educational programs in the schools while changing what they feed the students. Prue Leith, being a food export, as opposed to a researcher or an academic, has unique insight into the problem of child malnutrition, gained through years of experience. Leith stated that Finland's successful solution to their obesity problem began with the children; stating that "the government decided to tackle it through school dinners. Everything the children eat is nutritionally balanced, and there's very little choice." Each meal is part of their education. The students are involved with meal preparation and cleanup, so they learn to understand the process. They serve themselves so they can take as little or as much as they like, but they are expected to eat what they take so there is no waste. Food is prepared as it is needed, so it is always fresh and appealing when the children come through the lines. Leith encourages others to learn from Finland's experience and apply these lessons in the battle against obesity in the United Kingdom. He stated that "the scale of the problem is really scary. We (*the UK*) now have 35 percent of obese children, which is what Finland had before. Now they have 2 percent, so it can be done."Leith feels that fighting the problem of obesity, which often begins in childhood, is "quite difficult to do, but it is really worth doing [15]".

Discussing the role of family and relationships in nutrition, Leith, emphasizes that children are not eating healthily, "because their parents were not taught anything about food, and a lot of them were not taught to cook." She laments the emerging "snacking culture," saying, "family meals have gone right out the window," and chides parents who give their children pocket money instead of making sure they eat a good breakfast [15].

Parents need to be unrelenting in helping their children develop a taste for healthy foods. She urges parents not to give up if children don't like spinach the first time, assuring them that "children have to be persuaded to eat, and little ones are easy to persuade." Leith also discusses the role of peer pressure, both positive and negative, in the schools and talks of the importance of relationships with the teachers in the fight against obesity in children [15].

Methodology

The following sections highlight the methodology of the study.

Sample Design

A stratified random sample was used to conduct the research analysis in order to best represent the entire population being studied. This method of sampling was selected because of the ease of segregating the population along classes or strata. Stratifying the entire population before applying random sampling methods helps ensure a sample that accurately reflects the population being studied in terms of the criteria used for stratification. The population was set as 4 to 12 year old age group primary school going children in low income class urban areas in Dhaka city. The population was sampled through dividing the population into subpopulations and then applying a random sampling method to each subpopulation to form test groups.

A list of 38 low income class communities were identified from the Dhaka North City Corporation and Dhaka South City Corporation databases. These communities were selected due to their underdeveloped infrastructure, low cost housing and limited business activity. A total of 44 public and private primary schools were identified as operating among these 38 low income class communities. The 44 primary schools were assigned numbers from 1 to 44 and a 'Table of Random Numbers' were utilized to draw a random sample of 8 primary schools from among the 38 low income class urban areas in Dhaka city.

The target population of 4 to 12 year old age group primary school children were divided in three subpopulations, namely a 4 to 6 year old group (4,5 and 6), a 7 to 9 year old group (7, 8, and 9), and a 10 to 12 year old group (10,11 and 12). Each of the 8 primary schools selected were asked to provide lists of 10 children from each group. Hence, a tally of 80 children from each group were data based, namely 80 children from the 4 to 6 group, 80 children from the 7 to 9 group, and finally 80 children from the 10 to 12 group. This resulted in a pool of 240 to select samples from.

Each 80 child age group was assigned a number from 1 to 80, thereby eliminating bias by effectively blinding information about their identities, namely which school they belonged to and where they lived. A random 'Table of Random Numbers' was used to select 50 children from each group, resulting in a total sample size of 150 (3 age groups x 50 from each age group). These measures were undertaken to minimize research bias as much as was statistically possible.

Survey Methodology

The survey design incorporates a questionnaire based research process. Questionnaires were directed to the parents, namely mothers, of the selected children. Mothers have been asked to fill in the questionnaires as they are the primary care givers in their families, and play the role of the most involved and concerned stakeholder in a child's day to day activities. However,

the mothers were encouraged to discuss the responses with their spouses, as the objective of the research is to ascertain awareness about nutrition among parents of primary school going children, and not exclusively mothers. Questionnaires were directly handed over to the mothers of the selected children, after a brief introduction of the research and its objectives, and were asked to kindly fill in and hand over their responses within 7 days. The long period given to the respondees was aimed at giving busy parents enough time to think their responses through properly, and not feel the necessity to rush their responses to the questionnaire.

Questionnaire Design

The questionnaire was a one page document, with Bengali text, containing 8 questions for parents. The 8 questions measure 8 different metrics designed to successfully pursue the objectives of this study. Response options have been preselected and require no open ended answers. The questions have been designed to assess knowledge on multiple areas of nutrition, as reflected through their nutritional practices towards their children and how they maintain food standards in their households. The questionnaire has been designed to render actual information regarding nutrition practices in the family, as opposed to knowledge parents possessed about nutrition; thus enabling the study to understand the reasons for the disparities, if any, between knowledge and practice.

Analysis of findings

The results of the questionnaire survey revealed a string of metrics regarding parent awareness on childhood nutrition.

Children's water provisions during school hours

The first metric was designed to assess how concerned parents were about their children's water consumption. Approximately 53 percent of respondees stated that they did not feel the need to equip their child with a water bottle to school, citing the fact that their child's school already had a drinking water supply, see Figure 1. This signifies more than half of parents' lack of concern for their child's hydration, as not providing a personal water bottle to school could mean that children could get dehydrated. Children could easily not get the opportunity to drink enough, due to the fact that the water fountain could be physically located far away. The school teacher may not allow children to frequently walk the school hall to get a drink, resulting in children getting dehydrated. Children might also feel weak and may put off walking the distance to the communal fountain. Teachers, additionally, may not have the time to personally see to the needs of all children in class, resulting in children who are not outspoken to be left under the teacher's attention. However, a personal water bottle solves all of these problems by enabling children to sip water as often they wish whilst not having to go anywhere, or ask any one's permission. The practice of not giving a water bottle to a child signifies parent's unawareness of the importance of secured and hassle free hydration for their child.

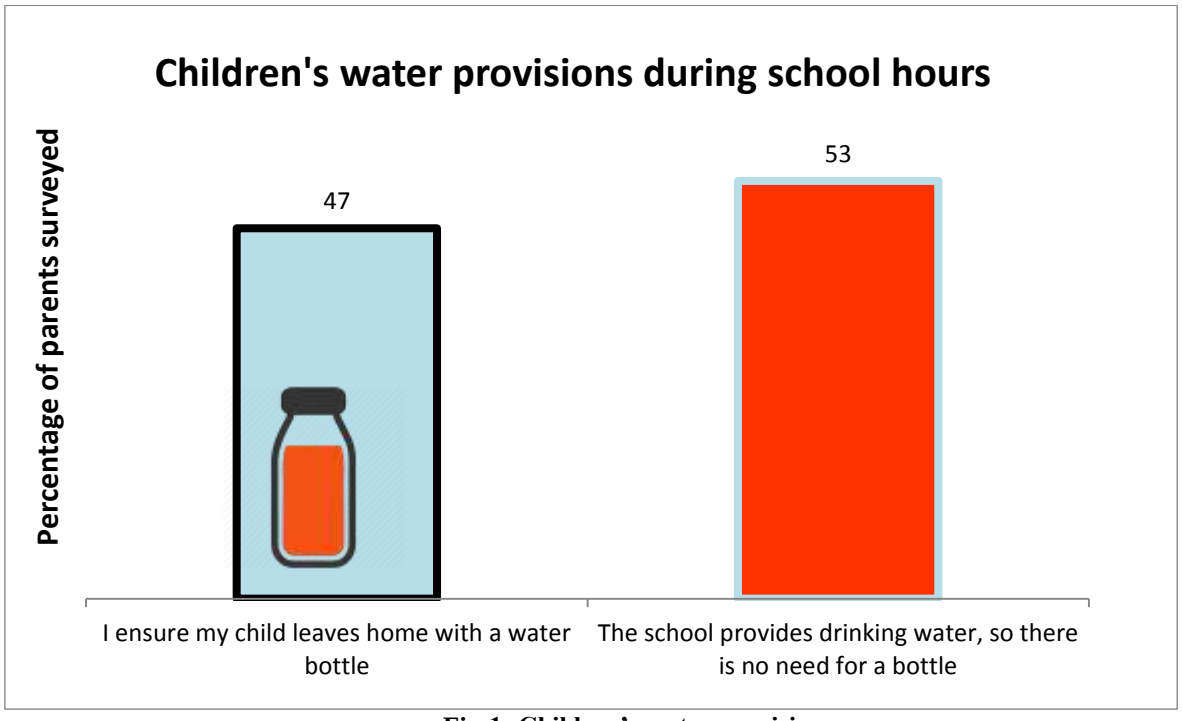

Fig-1: Children's water provisions

Children's breakfast sourcing patterns

Whilst over 30 percentage of households confirmed that their children had a breakfast before leaving for school, and a further 33 percentage attesting to their children being provided with lunch boxes, approximately 36 percentage of households acknowledged that they were unable to provide a homemade breakfast for their children and instead resorted to handing their children money to buy breakfast from a cafeteria or an eatery, see Figure 2. This surprisingly high rate of children not having access to a homemade breakfast means that these children start the day with a poorly made sub standard breakfast that is bound to not contain many or all of the nutrients that a primary school attending child needs every morning. Apart from the lack of nutrients, the outside sourced breakfast is also bound to contain sub standard ingredients such as poor quality cooking oil and ingredients past their expiry dates. Cheap fast foods may also contain poorly sourced ingredients which may be unhygienic. The practice of eating breakfast outside also influences unhygienic practices, as children may well forget to wash their hands after paying for their food. 36 percentage or more than one third of parents giving breakfast money to their children instead of providing breakfast at home again signals parent's unawareness of these issues.

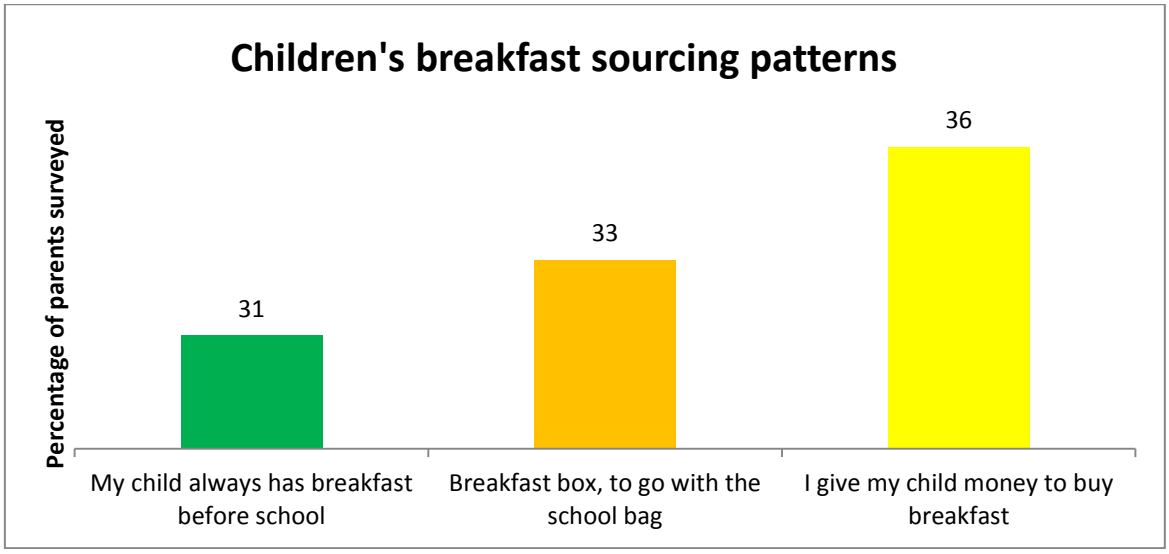

Fig-2: Children's breakfast sourcing patterns

Responsibility for cooking at home

Whilst 83 percent of parents reported that they personally cooked 3 hot meals a day for their children, 17 percent did also say that they had a hired help at home to prepare food for their children and themselves, see Figure 3. This seldom leads to nutritious cooking at home, as a third party is made responsible for the preparation of food. Nanny's and cooks seldom have the commitment to prepare food hygienically and methodically, which may lead to the loss of nutrition form food, or worse the preparation of food without any nutrition such as vitamins and minerals at all. Parents must be aware of these issues and not allow their children's food to be prepared by a third party.

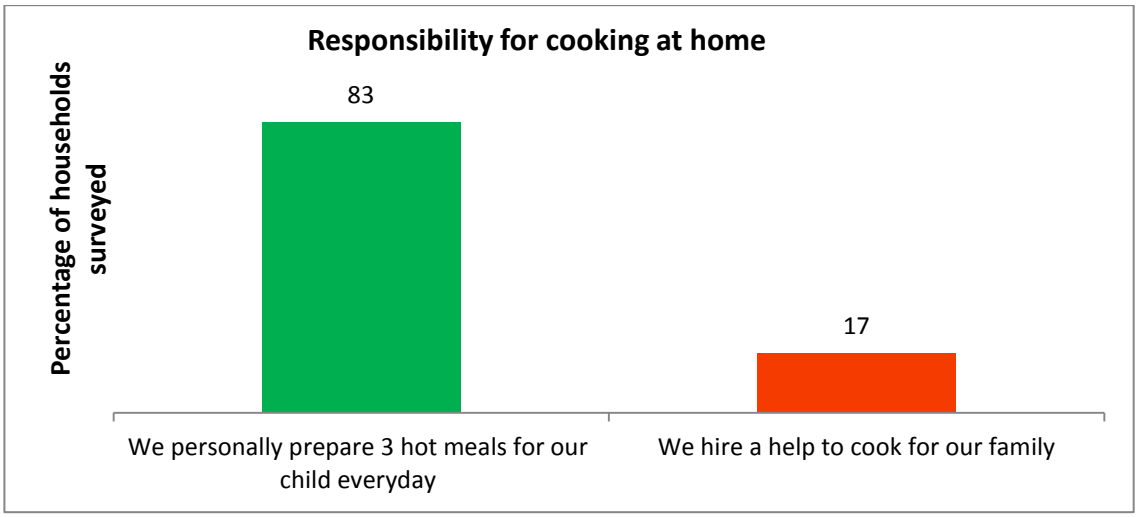

Fig-3: Responsibility for cooking at home

Weekly turnover of vegetable dishes

Figure 4 highlights the frequency at which vegetable dishes were cooked at households over a period of the average week. Almost 87 percent of the households surveyed revealed that they cooked vegetable dishes on 4 or more days of the week, see Figure 4. This metric reveals that parents have been proactive in putting vegetables on the table on a regular basis. However, the next metric shows that these results may be misleading, as parents are failing to make sure that their children are actually eating the vegetables.

Parent's leverage over children's vegetable consumption

Whilst 83 percent of parents stated that they cooked vegetables 4 or more days on the average week, around 43 percent of parents claim that they have been unsuccessful in actually making their children eat the vegetables. Such a high rate of children not eating vegetables at such a crucial age could be a frightening scenario for their health, as they deny their fragile bodies sensitive nutrients in the long term. Parent's inability to encourage their young ones to eat vegetables signals to their failure to comprehend this important issue and take serious steps to remedy their children's dietary preferences.

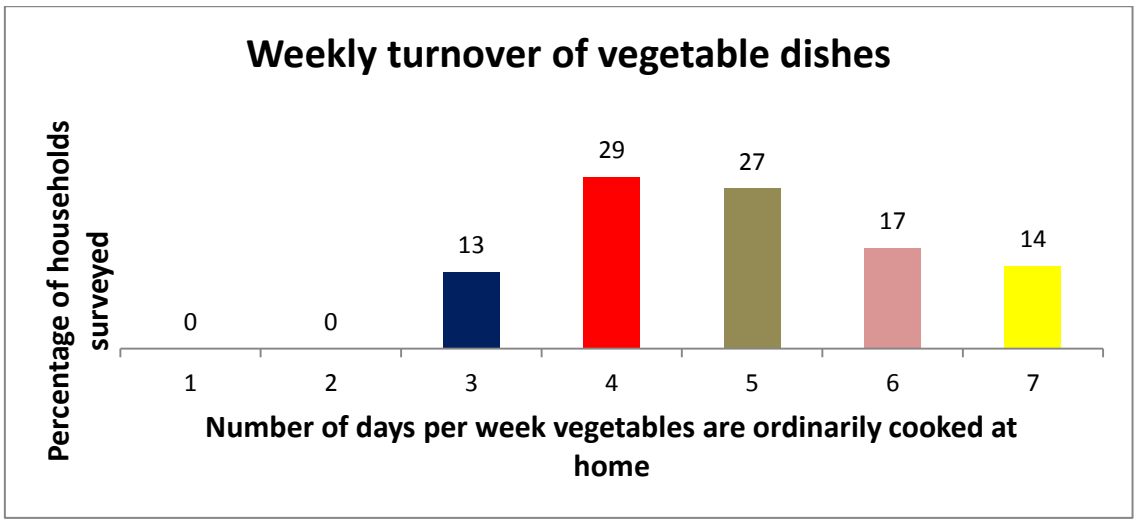

Fig-4: Weekly turnover of vegetable dishes

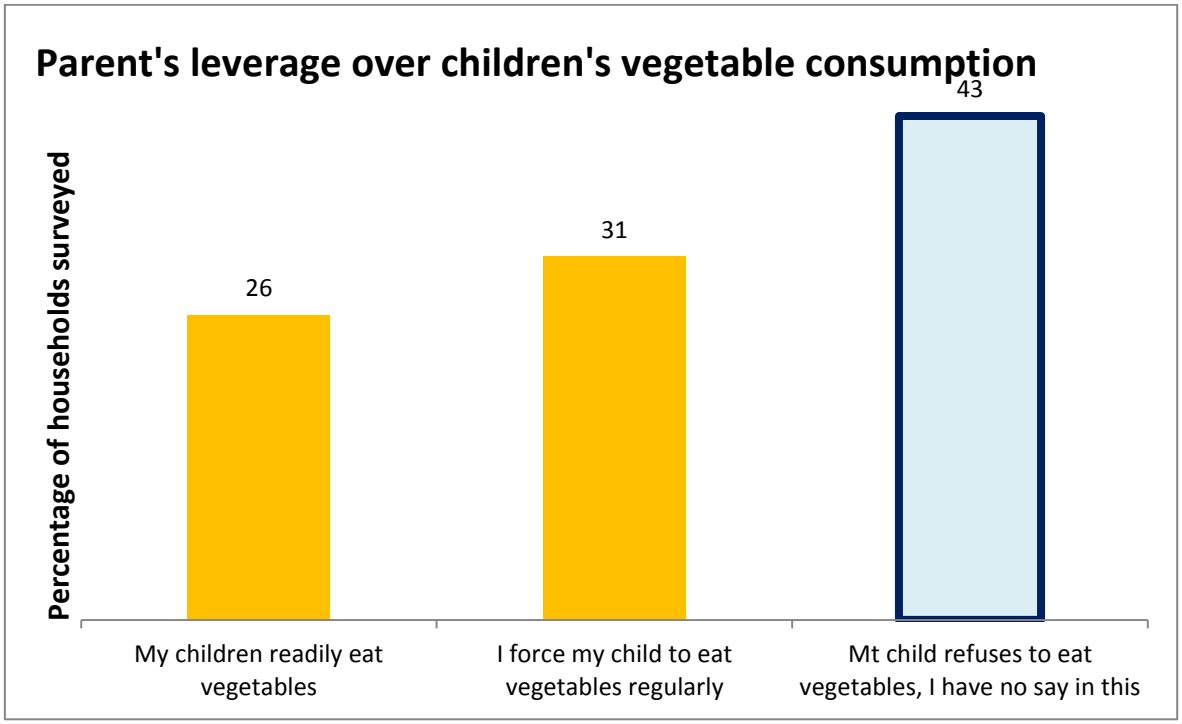

Fig-5: Parent's leverage over children's vegetable consumption

Parent's leverage over children's fruit consumption

Whilst parents in 70 percentage of households surveyed stated that their children regularly ate fruits, an alarming 30 percentage of households stated their children wanted nothing to do with fruits, see Figure 6.

Such a high rate of children not wanting to enjoy the taste of fruits whatsoever is a statistic that is too high, and is an indication of how parents have failed to get their children to see the benefit of consuming fruits, as the sweet taste of processed foods have substituted the sweetness of fruits.

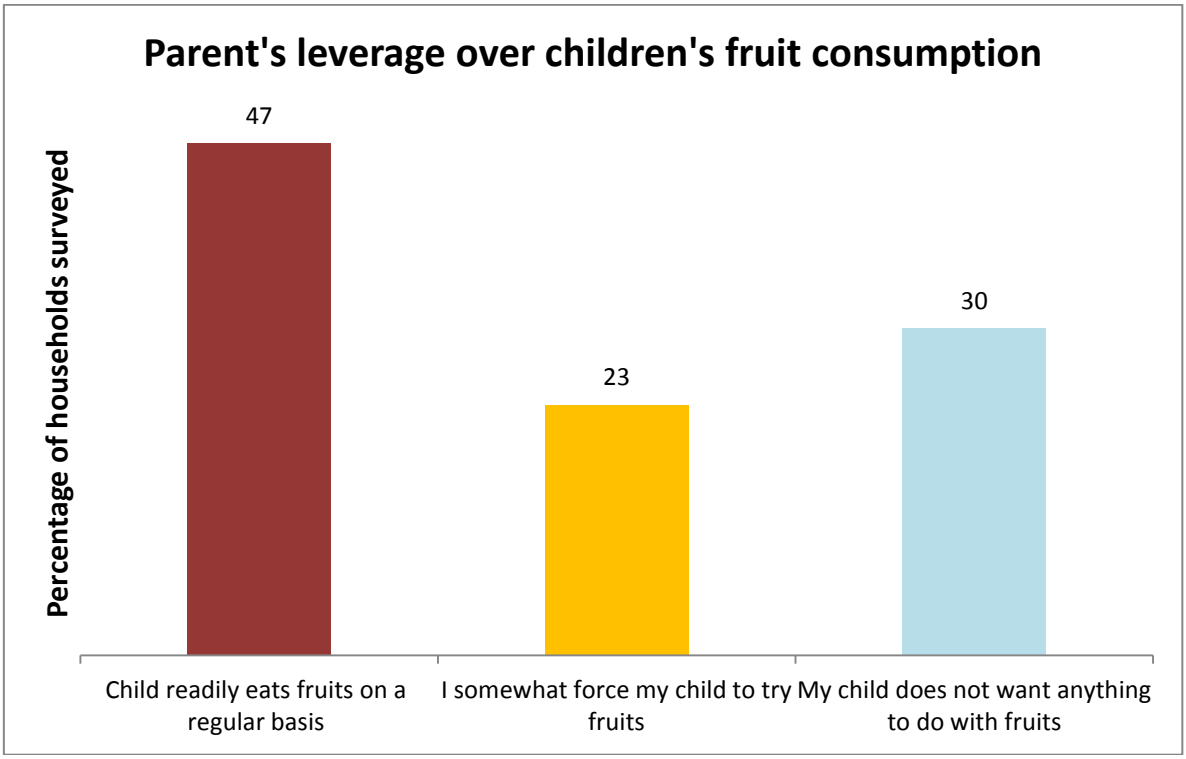

Fig-6: Parent's leverage over children's fruit consumption

Parent's leverage over children's fish consumption

Only 40 percentage of parents stated that they actively ensured that their children ate fish at home on a regular basis. Another 39 percent said that they regularly prepared fish at home but were unsuccessful in making their children eat fish. Surprisingly, a further 20 percent stated that they did not prepare fish on a regular basis at home at all, see Figure 7.

This means that 60 percent of surveyed households had children who were not eating fish. This type of dietary practice can be extremely harmful to children and may ultimately have adverse affects on a child's long term health and mental development, as the child is bereft of vital fatty acids essential to a child's brain functions and normal neuron activity.

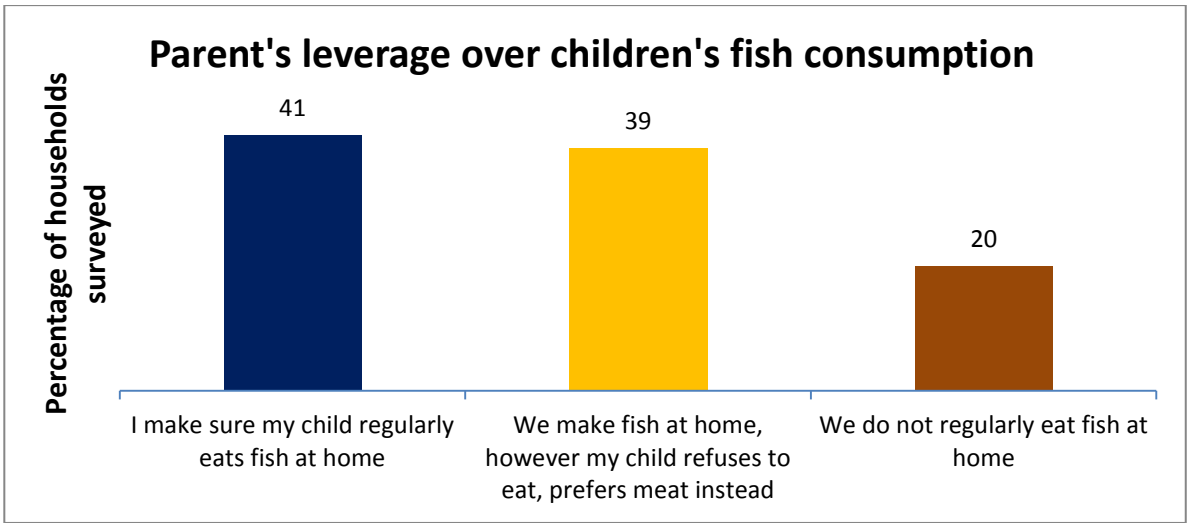

Fig-7: Parent's leverage over children's fish consumption

Weekly turnover of processed foods

At its peak, the survey data reveals that 39 percent of parents allowed their children to consume processed foods on at least 4 days of the average week. On the left, approximately 17 percent said they allowed their children processed foods at least 3 days a week.

On the right, 19 percent of parents allowed their children processed foods 5 days a week and a further 15 percent allowed 6 days a week. Only 1 percent acknowledged that they allowed their children to have processed foods 7 days a week. Figure 8 graphically highlights these trends.

All in all, more than 90 percent of parents allowed their children to have processed foods on 3 or more days of the average week. These statistics are increasingly worrisome, as most children surveyed have abandoned fruits and food prepared at home in favor of cheap junk foods filled with unhealthy carbohydrates, preservatives and trans fats which not only fail to deliver any nutrition value, but also contribute to the occurrence of diseases such as diabetes.

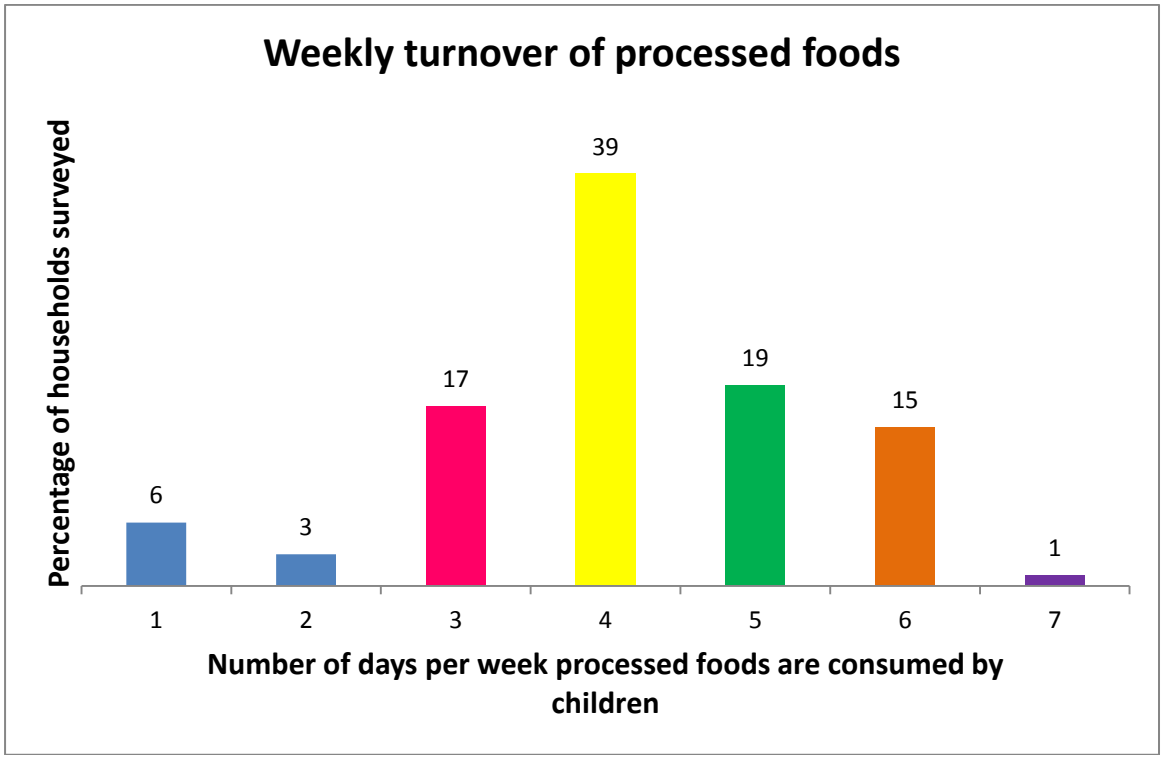

Fig-8: Weekly turnover of processed foods

CONCLUSIONS

The results of our survey reveal worrisome statistics pertaining to children's consumption of vegetables, fruits and fish. A particularly high weekly turnover of processed foods also signals underlying problems with children's nutrition as overseen by their parents. If we add together the fact that a high proportion of students also did not have a proper breakfast every school morning, we can see that there are serious challenges to children's overall nutrition. These issues have been borne out as a result of neglect by parents, and an insufficient awareness on their part about the consequences of malnutrition.

Examples and past experiences nationally and internationally, have shown that it is possible to address these challenges with only limited funding and innovative initiatives at school and in wider society. Bangladeshi society and its parents need to improve their stance towards their children's nutrition, as much as they care about their children's academic results at school. The report wholeheartedly promotes the recommendations listed within, and urges healthcare professionals and wider academy in general to pursue more robust action to address children's nutrition, as it is an issue of critical national importance.

Previous studies and discussion on child malnutrition has placed a strong emphasis on parental inadequacy and poverty as being the reason children go hungry; however it is time to put the blaming of parents and other factors to one side and to focus on improving the lives of affected children. There are some important reasons for this: the first is that Bangladesh is a signatory to the UN Convention on the Rights of the Child. Under the Convention, State parties have an obligation to ensure children receive adequate nutrition because children have rights on their own account. The second is more pragmatic and far reaching.

Bangladesh will be facing a massive demographic shift in the future as its sizeable

population starts aging and will subsequently start requiring expensive healthcare care and pensions. The phenomenon will be compounded by the fact that the birth rate in Bangladesh is declining [32]. As a nation, Bangladesh will need every child to be an educated, well-informed and functioning citizen who will be able to generate revenues through taxes for the government in order to fund critical public services, and defense expenditure. Ensuring proper nutrition for Bangladeshi children today will ensure that they will grow into healthy Bangladeshi citizens capable of shouldering their responsibilities.

Recommendations

Children can be taught what is best

Children can also play an important role in assessing their own diets. Training them at an early age about nutrition can instill maturity and independence when it comes to food, leading to a lifetime of healthy choices, staving off diseases such as diabetes and kidney failure, and a lifetime of medication and visits to the doctor. Children are ideally suited as they have less on their plates, meaning that they have no jobs and mortgages to worry about, and hence can be engaged quite easily by teachers and care takers. Teaching children directly will mean that even if parents fail to practice proper nutrition, their children will be there to remind them.

Empowering Children with Real Education

The education system is partly or perhaps more substantially, responsible for the failure of individuals, both parents and children, to make proper decisions when it comes to food. Schools emphasize more on substantial subjects such as science and mathematics at too early an age, robbing children of the opportunity to learn about nutrition and healthy eating. Pressures from home and school lead to a neglect of gaining knowledge about the human body. Even though biology does discuss healthy eating, it comes at too late a period at a child's life, often after the age of 14 or 15.

The Bangladeshi national school curriculum, which relies heavily on foreign educational material from countries such as the United States often have outdated perceptions about nutrition themselves, has not been updated to reflect the realities of 21st century eating and health practices. New curricula must be designed by academics in our country which focuses on areas such as the demerits of fast food and processed food, obesity, the necessity of micronutrients in the diet such as potassium, selenium, iron, and heart friendly compounds such as lycopene.

Local education must counter the marketing efforts emanating from western countries, which often portrays the consumption of fast food as fashionable. Such lifestyles have lead to children not wanting to eat healthy homemade meals, and have ditched them wholesale in favor of a home delivery from a fast food outlet. Children must be taught how these foods are ultimately going to have an adversely negative effect on their health. Children must be taught the importance of eating fruits regularly. The easy availability and affordability of sweets and sweetened drinks in the markets has lead to children abandoning the natural sweetness of fruits. Yogurt and fruits have been replaced with donuts and cake. New text books must highlight how these foods contain activators of diseases such as diabetes and cancer. Books must contain images of how organs inside the human body have been damaged by the consumption of processed factory food overtime.

Such initiatives will result in the demand for harmful food drastically being reduced. At the same time children's appetites for healthy homemade meals will increase. The government will have to take an active role in this education renaissance. However, once completed, these changes will result in drastic improvements in eating habits and how children look at food. Ideally, however, the best result will be that once these children become parents themselves, they will instill these virtues onto their children. An investment in one generation will have ripple effects for the next.

Empowering Parents

As being the primary, and also the last level, care providers for children, parents must be empowered to make healthy decisions for their families. These may come from a variety of policy changes. Children must also be groomed in schools, and through educational media packages, of the virtues of healthy eating. The government and children's welfare NGOs must play a critical role in developing and implementing these policy initiatives.

Even a rich education, sometimes, fails to inform an individual about the virtues of good nutrition and healthy eating. Parents are no different. There must be both tactical and strategic initiatives taken to combat ignorance about nutrition. Information can be the greatest weapon in the fight against malnutrition in our country. Again, the government must centrally plan and produce educational packages to target parents. The following actions may be taken:

National Nutrition Day

The Government could declare a National Nutrition Day once a year, to highlight the importance of nutrition. Drawing inspiration from the idea of a Parent Teacher meeting, schools may voluntarily invite parents to their class rooms for nutrition meetings, where the nutrition of their children could be discussed. Parent attendance could be made mandatory and presentations on proper eating, hydration, and cooking techniques could be held once a year. Special emphasis could be placed on how healthy meals could be affordably prepared at home.

Media Packages

The Government could take the initiative to produce media that specifically targets parents. Dedicated television programmes could be regularly broadcast on television. Content could range from nutrition talk shows, cooking techniques, shopping healthy produce on a tight budget, among other issues. These media packages would allow easy accessibility to nutrition information by parents. Additionally, they would constantly remind busy parents of the value of nutrition. Guest appearances by celebrity parents would also bring necessary exposure to this most important issue, as parents would be more able to identify with, and feel more excited, to listen to celebrities talk about how they tackle nutrition at home.

Government Legislation

Legislation should be aimed at making processed and unhealthy foods more expensive, and thereby out of the reach of children. The BSTI, NBR and other government agencies could play a role in the following initiatives:

Reducing demand through taxes

The government could raise taxes on foods which have been deemed harmful for children. For example, foods with high preservatives, transfats, excessively high amounts of sugar, and other constituents, could be taxed higher than other goods in their category to reduce demand for those specific goods. This would reduce demand for them instantaneously.

Direct Labeling of harmful products

The BSTI could directly label products, deemed as harmful to children, as not suitable for children. This would directly dissuade parents from buying those goods. The BSTI could also directly label foods which are nutritious for children as child appropriate, thereby encouraging parents to purchase those foods for their children.

School Cafeteria Policing

The government must enact new laws which prohibit the selling of unhealthy junk foods in school cafeterias to children. At the same time the government could provide a list of nutritious foods which should be sold at schools. The government should also ensure the provision of clean drinking water in schools, and their continuous maintenance, thereby making sure that children have an easily accessibly source of water to drink at a moment's notice.

Teacher Training

Teachers in all schools, not just primary, but also intermediate schools should be trained in nutrition programmes. These would allow teachers the opportunity to gain proper knowledge about nutrition, including meal content, frequency, and hydration. Teachers in turn would then be able to instill this knowledge on to children. Training programmes must be provided free of cost, and made mandatory for all primary and intermediate school teachers.

Breakfast, Schools and the Government

The government should also take more drastic steps to ensure that children from the most financially challenged families get immediate help. Healthy breakfasts for children from low income families in primary schools will go a long way to ensure that children receive proper nutrition during the day. Breakfast is an important meal for improving uptake of nutrients including iron, and regular healthy breakfasts can reduce children's likelihood of being overweight. A national study must be launched to assess and identify both urban and rural areas needing critical attention, and necessary policy changes must be implemented to initiate a national breakfast programme. Making breakfast available to primary school children in low income families will help to target children with the greatest need, and thus ensures a balanced diet to start the day during a critical phase of a child's growth. Breakfasts should be required to comply with nutritional guidelines to ensure not just minimum, but a good nutritional standard. Programmes need to be monitored and evaluated, by the government, for effectiveness, to ensure objectives that are being met, and that a consistently standard service is being delivered to children of low income families.

Breakfast programmes need to be resourced properly through regular and secure funding from the central government. Expenditure on other less necessary areas must be sacrificed for the sake of our children's health. This funding needs to pass hands directly from the Ministry of Education of Bangladesh to the schools, and cover most of the cost. International experience clearly demonstrates that food programmes cannot rely solely on charity, volunteers, and/or donations of food and time from teachers. State contributions should be dedicated specifically to school run programmes, and not NGO run schemes, and subject to audits to ensure funds are being used for the purposes for which they were allocated, as Bangladesh has a history of funds being misused by NGOs.

Schools need to be provided with a policy framework from the government that encourages them to develop relationships with the parents of their attending children, and to help build capacity within their local communities. Subsidies and assistance should be designed to promote these relationships.

Learning the Habit of Reading Food Labels

At home, as well as practicing the habit themselves, parents should teach their children the importance of reading food labels every time they eat packaged food bought from outside. Reading food labels will make it much easier for parents to compare foods and find the foods that have the nutritional value

that children need. Food labels are useful in finding food items higher in vitamins, fiber and protein. They also help people to steer away from bad fats, such as transfats.

Food labels can help limit the amount of fat, sugar and cholesterol in children's diets by making it easy for parents to compare one food item with another and choose the one with lower amounts. Although food labels may appear complicated at first, they are quite easy to understand once the system of nutrients and percentages or grams are understood. A food label can include only the ingredients that are in the food product. All ingredients must be listed in descending order by weight, including added water. The ingredient listed first is present in the largest amount. So if sugar is the first ingredient it means that sugar is the main ingredient and the product is high in sugar. The ingredient listed last is present in the smallest amount.

Additionally, teaching children to read food labels helps them to pick up the habit of reading and ensuring that their food is sourced from a reliable producer who provide genuine information about the contents of the food, an issue which is of serious importance in Bangladesh. Many foods contain food additives and preservatives, which have been shown to cause certain types of cancer in some cases. There are strict guidelines about the way food additives and preservatives are used in foods and labeled on food products. Teaching children how to look out for these chemicals can be one of the best things parents can do for their children, in terms of promoting excellent dietary practices.

Improving hydration one drink at a time

Parents must ensure that children have a drink before going to school, that is, with breakfast, and before and during playing, as it provides children with hydration during peak times of necessity. Parents, teachers and guardians should offer drinks regularly, especially during hot weather and during periods of excess stress, such as exam week. Additionally, schools and the household must have easy availability and access to drinks that children enjoy. Water, milk, coconut water, juice, and other fluids can all help meet a child's hydration needs. Sometimes, children will complain of being hungry, when they are actually thirsty and haven't had a glass of water for hours; teaching children the importance of drinking water frequently will lead to them consuming unnecessary calories as well.

Bottled water, as a commodity, is readily available in all urban and suburban settings in Bangladesh, and as such represents an easy source of access to clean water. Parents must encourage schools to carry sufficient quantities of bottled water, or safe filtered water, with provisions for ample drinking containers, preferably clean glasses, to provide children with a secure source of hydration during the 5 to 6 hours of schooling 5 days a week. If this is not a serviceable solution, parents must be persuaded to always pack a water bottle in a school bag or lunchbox for children heading off to school/outings/other activities. Additionally, teachers must be trained to encourage children to frequently take out their water bottles and help themselves to a sufficient serving.

However, it must also be remembered that many foods, such as curries, vegetables, fruits, yogurt and soups, have high water content and can also contribute to fluid intake. Children must be fed an appropriate assortment of dishes, whilst conforming with Bangladeshi eating habits and culture, to ensure that food provides hydration as well, and that a diet with a significant portion composed of excessively dry foods are avoided.

The amount of fluid a child needs depends on many factors including their age, their gender, the weather and how much physical activity they do, but generally they should aim to drink about 6-8 glasses of fluid per day (on top of the water provided by food in their diet). Younger children need relatively smaller drinks (e.g. 120–150 ml serving) and older children need larger drinks (e.g. 250–300 ml serving).

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Appendix

Questionnaire

1. Do you regularly provide your child with a bottle of water to go with the school bag?
   ☐ Yes always, or on most days
   ☐ The school provides water, so I don't
   ☐ No, school is only a few hours; there is really no need for a bottle
2. Do you regularly provide your child with breakfast at home during school days?
   ☐ Yes, I make sure my child has breakfast before leaving for school
   ☐ No, I give my child a breakfast box to go with the school bag
   ☐ No, I give my child money to buy breakfast from school
3. Do you personally produce homemade meals for your child?
   ☐ Yes, someone in my family is always there to produce homemade meals
   ☐ No, we employ a hired help to cook for us at home
4. How many days a week do you cook a vegetable dish for your child?
5. Does your child readily prefer to eat vegetables?
   ☐ Yes, my child shows relatively little hesitation towards consuming vegetables
   ☐ I make sure my child eats fish, when fish is part of the meal
   ☐ My child refuses to eat vegetables altogether, I have no say
6. Do you feed your child fruits regularly?
   ☐ Yes, my child eats one or another kind of fruit every now and then
   ☐ I force my child to eat fruits
   ☐ No, my child does not like taking fruits at all
7. How often does your child get to have fish at home?
   ☐ I regularly prepare fish at home, and make sure my child eats it
   ☐ I regularly prepare fish at home, but my child refuses to eat fish altogether-prefers meat instead
   ☐ We do not regularly eat fish at home
8. How many days a week do you allow your child to eat processed foods, such as sweets, chocolates, soft drinks and cakes?
9. How many days a week do you allow your child to skip lunch/dinner at home in favor of a restaurant meal?