

Original Research Article

## **Diet Consumption Pattern of the Children under Age Five and the Caregiver's Awareness on the Nutritional Value of Their Children's Meals in Some Rural Areas of Batticaloa District, Sri Lanka**

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**Abstract:** Diet consumption pattern and the parent's knowledge on nutritional value of the variety of foods are some of the important factors which influences on the child growth and their health. In this aspect, the present study was conducted at some rural areas of the Batticaloa district, Sri Lanka to find the diet consumption pattern of the children under age five (05) and the parent's awareness on the nutritional value of their children's meals as an initial step to promote the nutritional status of the children. Questionnaire survey, personal interview and direct observation were carried out to collect the information. The findings revealed that the diet consumption pattern were varied among the different aged group however, rice was the major food consumed by the children in the study area. As far as the awareness of the parents on nutritional value of the meals is concerned, they are with a lack of knowledge on it. Therefore, awareness has to be created among the parents at the study villages regarding the importance of adding variety of food on their child's meals to get better growth of their children.

**Keywords:** Birth weight, Diet quality, Healthy food, Nutrition, Nutritional status

**INTRODUCTION**

Amount of food intake and nutritional value of consuming meals are very essential which influenced on the growth as well as health of the children. A variety of healthy foods promote diet quality, along with early and sustained food acceptance [1]. As children transition to the family diet, recommendations address not only food, but also the eating context. Evidence also indicates that dietary habits acquired in childhood persist through to adulthood [2-4]. Dietary habits differ among countries as well as locations within the country itself.

According to Sri Lanka Demographic and Health Survey, 2007, 21.6 % of children less than 5 years in Sri Lanka were underweight [5]. Although inadequate food intake is a basic cause for under nutrition, several other factors such as living standards, water and sanitation, birth weight, birth interval and parity, weaning practices and mother's education have been contributing to incidence of malnutrition among the preschool children. Internal war within the country during the past three decades influenced on the children's education and health especially in rural areas of the Sri Lanka. Batticaloa district is one of the

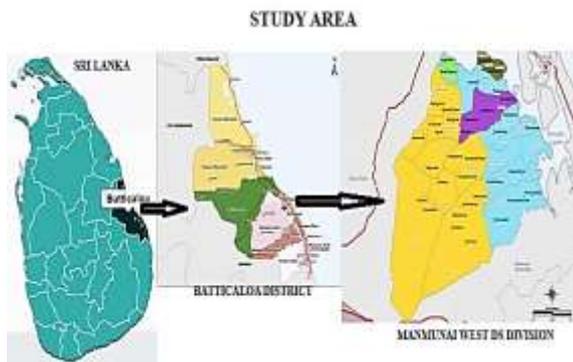
districts affected by such conflicts and most of the families were displaced with their children and presently resettled at their native villages. The availability, variety of food might have influenced on the diet consumption pattern of the children living in those resettled places.

The present study was conducted in the rural areas of such resettled villages at Manmunai West DS division of the Batticaloa district. According to the profile of the Batticaloa district, total population has been recorded as 515,857 and around 17% (88,459) of the people accumulated in the Manmunai west Divisional Secretariat Division which is now under developing conditions [6]. Most of the families were with poor economic status and utilizing available limited resources in those areas for their day to day needs. Different food pattern without the knowledge of nutritional value and inadequate food intake among the children are the major causes for the under nutrition problems in those rural areas of the Manmunai West DS area. In general, many factors influencing on the food intake and eating habit of the children like economic status of the family, food type, parent's involvement,

internal motivation, external motivation etc. In this view, present study was aimed to find the diet consumption pattern of the children and the parent's awareness on the nutritional value of the foods to solve the existing malnutrition and health related problems among the children.

**METHODS AND MATERIALS**

**Study location**



**Fig-1: Locations of study area**

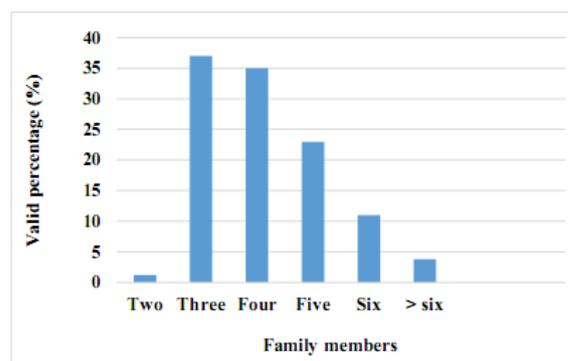
This study was conducted at 20 villages of Manmunai West Divisional Secretariat of the Batticaloa District of Sri Lanka during September 2015 to March 2016. Two hundred (200) families with the children below five years of age were selected for this study. Children were grouped based on their age as less than 6 months (20 children), 6-12 months (50 children), 1-2 years (60 children) and 3 to 5 years of age (70 children). A pre-tested structured questionnaire was used to collect the information on diet consumption pattern of the children and the caregiver's awareness on nutritional values of their children's diet. Eating habit of the children were also studied through observation and caregiver's responses. The foods were presented in a random order in a questionnaire. The measure was not designed to comprehensively assess all foods eaten but considered the major food items generally eaten by the children in the Batticaloa district. External motivation to have their meals also gathered from the caregivers during the survey. Finally collected data were analyzed by using statistical package for social science (SPSS, 19 version) Software and descriptive statistics.

**RESULTS AND DISCUSSION**

**Gender distribution of the respondents**

Among 200 respondents (parent/caregiver), 89% respondents were female while 11% were male. Highest number of women Participation in this study considered as an advantage, because most of the issues under study are handled by the female gender in this community. Further, the study revealed that, 48% boys and 52% girls children are involved in this study.

**Family size of the households**



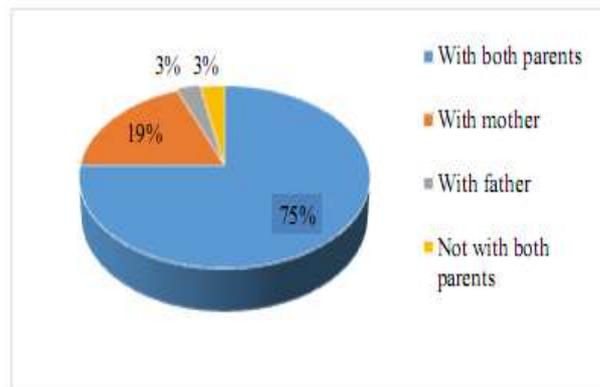
**Fig-2: Average family members under study**

The findings revealed that most of the families (98.8%) have the family size of more than 3. In such cases work load for the household management and decision making was indirectly influenced by the family members. On the other hand, most households in the area had family size in between 3-5.

**Education level of the caregiver**

The household findings revealed that out of 200 respondents, 13% have no education whereas; more than 86% of the respondents have been educated above the primary school level.

**Living status of the children**



**Fig-3: Living status of the child**

About 75% of the children under age five are living with their parents whereas 6% of the children are living with their grandparent or with father (Figure 3). And 19% of the children are living with their mother only.

**Diet consumption pattern and eating habit of the children**

**Diet consumption pattern of the children**

Diet consumption pattern of the children under age 5 was undergone for further evaluation. Data were collected from the active participation of the parents and caregivers during the last one week period from the commencement of the study period.

**Table 1: Diet consumption pattern of infants aged 6-12 months (%)**

Food items	Once/week	2-4times/week	5-6times/week	daily
Cereals (Rice)	0	0	0	100
Vegetables	4.3	21.0	32.5	42.2
Fruits	27.1	24.4	36.2	12.3
pulses	16.8	28.9	45.1	9.2
Mung kaly	12.4	18.9	28.5	40.2
Breast milk	0	2.0	5.0	93.0
Formula milk	0	0	16.0	84.0
String hoppers	4.0	7.8	72.8	15.4
Mixed cereals and pulses kuly	11.8	28.0	52.0	8.2
threeposha	14	18.5	19.5	48
egg	7	25.8	63.4	3.8
fish	10.4	22.3	54.7	12.6
meat	87.0	13.0	0	0
Fruit juice	8.9	12.2	31.3	47.6
yoghurt	46.8	30.6	11.3	11.3

### (1) Diet consumption pattern of the infants (6 to 12 months) in daily basis

As shown in table 1, 100% of the responses were fitted with the eating pattern of Cereals (daily) and it was the peak results obtained from the whole respondents interviewed during the study period. Since the age of the infant is in between 6 to 12 months, mothers should be encouraged with the breast feeding, continuously. As the supportive responses, around 93% of the mothers feed their baby with the breast milk while 84% of the mothers also responded with the formula milk. It was fairly adapted in the nature of the study location of the Batticaloa District, Sri Lanka.

As the second most important category, Thiriposha is given to the infants and it was mentioned by 48% of the total respondents. On the other hand, pulses are considered into high protein supplemented food items into the food pyramid which can be added solely or mixed with the meal of infants. At the present study, only 9.2% of the respondents mentioned that they feed pulses to their babies while 40.2% of the mothers mentioning about Mung Kaly. Egg and fish are other types of protein enriched food items where the responding value was 3.8% and 12.6%, respectively. String hoppers are the meal prepared by cereals especially for the energy supplement to the infants. It was evidenced by 15.4% of the total care takers during the study period.

Further, mixed cereals and pulses can be fed to the babies to give both energy and protein, at the same time, which is really good for the growth of the young ones. With this concern, mothers and caretakers were interviewed, where 8.2% of the mothers take attention on daily basis. Not only that, but fruits and vegetables

are also taking part a great role in the food pyramid where 42.2% and 12.3% were responded by mothers for vegetables and fruits, respectively. At the current study, women prefer to ensure the consumption of their infants with fruit juices (47.6%) and yoghurts (11.3%).

### (2) Diet consumption pattern of the infants (6 to 12 months) in sequences (weekly basis)

According to the results, 100% of the mothers feed their infants with cereal especially rice in the study location. And also, only very few percentages (7%) of the mothers adapt to feed their babies with breast milk which was 2% and 5% for 2-4 times per week and 4-5 times per week, respectively. And also, formula milk was practiced only by 16% of the respondents, during the study period. Nearly 87% of the respondents mentioned that they add meat into the meal pattern of the infants once in a week. As the second, yoghurts and fruits are taken into the concern of the mothers with the valid range of 46.8% and 27.1%, respectively.

About 30.6% of the respondents mentioned that they give yoghurts 2-4 times per week with different flavors to their infants. And also, they have the knowledge on pro-biotic supplements via milk by products.

While concerning a short interval (4-6 times per week), string hopper was in dominant approach with the value of 72.8% of the respondents. As the second, egg was taken part as 63.4% and the following categories are fish (54.7%), pulses (45.1%), fruits (36.2%), vegetables (32.5%), fruit juice (31.3%), mung kaly (28.5%), Thiriposha (19.5%), etc. There was no response obtained with the meat category, during the study period.

**Table 2: Diet consumption pattern of infants aged 1-2 years (%)**

Food items	Once/week	2-4times/week	5-6times/week	daily
Rice	0	3.4	2.1	94.5
pittu	70.2	16.1	12.2	1.5
String hoppers	38.4	31.3	21.4	8.9
hopper	66.4	28.4	5.2	0
Dosai	77.3	15.2	6.3	1.2
idly	89.5	10.5	0	0
rotty	93.2	5.6	1.2	0
noodles	98.8	1.2	0	0
bread	63.7	32.7	3.6	0
Tea bun	7.2	33.1	31.3	28.4
biscuits	7.2	12.2	14.2	66.4
vegetables	1.2	7.2	16.1	75.5
fruits	31.3	38.4	28.3	2.0
Green gram	72.4	23.5	4.1	16.1
meat	98.8	1.2	0	0
egg	15.2	28.4	53.6	2.8
fish	1.2	32.7	28.4	37.7
Curd	52.7	40.9	6.4	0
yoghurt	94.5	5.5	0	0
Mixed cereals and pulses kuly	3.6	6.8	86.8	2.8
Fruit juices	1.2	2.4	9.6	86.8

The table 2 shows that, diet consumption pattern of infants aged between 1 and 2 years varied with the food pyramid in nature. Predominantly, majority (94.5%) of the total allowed the infants to eat rice than the other food items. Fruit juices (mainly lemon and lime) were given to the children by 86.8% of the total respondents,

in daily basis. Consumption of the vegetables (75.5%) was higher than the fruit (2%) where the gap was significantly higher. As the protein enrichment in the diet, fish was added with the main meal where 37.7% of the respondents agreed with this combination.

**Table 3: Diet consumption pattern of infants aged 3-5 years**

Food items	Once/week	2-4times/week	5-6times/week	daily
Rice	0	0	1.2	98.8
pittu	40.8	34.6	23.4	1.2
String hoppers	21.3	43.4	26.4	8.9
hopper	68.5	23.8	5.3	2.4
Dosai	77.4	13.7	8.9	0
idly	86.3	12.5	1.2	0
rotty	81.9	16.9	1.2	0
noodles	94.9	5.1	0	0
bread	25.9	67.3	6.8	0
Tea bun	29.0	29.0	36.9	5.1
biscuits	36.9	32.4	21.3	9.4
vegetables	2.4	5.1	36.9	55.6
fruits	4.8	21.3	21.3	52.6
Green gram	64.9	17.0	16.9	1.2
meat	94.9	5.1	0	0
egg	16.9	40.8	38.2	0
fish	3.6	36.9	54.4	5.1
Curd	13.7	68.5	15.4	2.4
yoghurt	92.2	7.8	0	0
Mixed cereals and pulses kuly	5.1	91.3	3.6	0
Fruit juices	4.8	21.3	40.8	33.1
Ice cream	98.8	1.2	0	0
Roasted ground nuts	87.3	10.3	2.4	0

Further, 16.1% of the respondents used green gram in their infants' meal pattern. However, pittu, string

hoppers and dosai were prepared as the breakfast and dinner by few mothers from the study location (<10%).

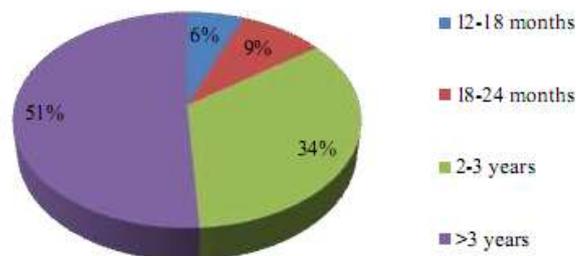
And also, diet consisting egg was significantly lower in its value and it is nearly 3% of the total as well. Results further revealed that the majority (94.5%) of the total responses were with the diet pattern of rice. And also mothers started curd (52.7%) in the diet pattern of the infants in Batticaloa District. Further, fish and mixed cereals (<5%) were significantly lower in the infant's diet pattern. On the other hand, such meal pattern was ensured as an average period of 2-4 times per week where 40.9% of the mothers provide curd for their babies.

As shown in table 3, rice took a great responsibility among 98.8% of the total respondents. Here the interview was done mainly with the child since the age is quite right to express the truth and fact regarding the meal pattern of the children. The parent's responses were also noted in some circumstances. According to the responses given by the child and parents, nearly equal percentage was responded for the fruits (52.6%) and vegetable (55.6%) in to their diet pattern. Approximately, 33.1% of the children mentioned that they drink fruit juice, daily. However, pittu and green gram (1.2% each), hopper and curd (2.4% each), Fish and tea bun (5.1% each), string hoppers and biscuits (nearly 9%) were also encountered.

Results showed that the mixed cereals and pulses were taken in high amount (91.3%) in the interval of 2-4 times per week which is followed by curd (68.5%) into the child's diet. Around 40% of the child mentioned that they eat egg and fish two times per week. And also, bread and string hoppers were with the value of 67.3% and 43.4%, respectively. Those meals were ensured at the top of their diet with the interval of 2-4 times per week. New roasted ground nuts were given by 10.3% of

the mothers. Around 92.2% of the total consumes yoghurt while 94.9% of the children eat meat in their diet. And also, 64.9% of the mothers add green gram into their diet for the protein enhancement. Further, cereal based breakfast and dinner (rotty, pittu, string hoppers) is common to those children at the study location of Batticaloa District, Sri Lanka.

**Eating habit of the children  
Children started to eat independently**



**Fig-4: Children started to eat independently**

These data were collected from 110 parents those who are having child with the age more than 18 months. Nearly 51% of the parents reported that, their children started to eat independently after 3 years of age. None of the caregivers said that, their child started to eat independently before one year of age (Figure 4). According to the caregiver's statement it is revealed that about 49% of the parents are still feeding their children occasionally even the child started to eat independently.

**(b) Behavior of the children while having meals**

**Table 4: Attitude of the children while having meals**

Habit/attitude	Percentage responses (%)		
	6-12 months children	1-2 years children	3-5 years children
Watching television	12	20	37
Listening songs	0	08	10
Playing within the home	56	12	05
Taking too much of time to eat	48	40	25
Expecting mother to feed	92	80	65
Expecting father to feed	08	10	05

The table 4 shows that, most of the children under age five were expecting their mother to feed their meals. Watching television and listening radio by the children during their meal time was very low as there are unavailability of television and radio at their homes. Generally, it is also observed that considerable number

of children in all age group consumed more time to eat. The similar foods repeated every day without changing the diet composition, without good smell and tasty may be the reasons for consuming more time to eat.

## (c) External Motivation to eat

**Table 5: External motivation to the children to have their meals**

External Factors motivate the children to eat	Percentage of responses (%)			
	never	Not very often	sometimes	Very often
Feel to eat when passing sweet shop/bakery	30	15	55	05
food looks, good smells	10	09	16	65
When they see other people eating	09	14	57	20
have got something delicious	05	04	25	66
they are in a group of similar age	03	05	24	68
Allowed the child to do their desired activity after having meals	12	04	20	64

In order to find the external motivation to the children (with the age more than three years) for having their meals, six (06) factors were listed and the parents were asked to rate as never (1), not very often (2), sometimes (3), very often (4) and their answers were tabulated in percentage.

Based on the responses from the parents, it was found that children in the study area started to eat more when food are delicious, looks coloured and with good smell. Similarly, they are faster and consumed more food as they are in a group of similar age than with unfamiliar groups members.

**Caregiver's/parents awareness on nutritional value of their child's meals**

The present study was made an attempt to find the parent's awareness on the child's meals and their nutritional value. To achieve this, the questions were asked to both parents regarding the food habit of their child. Most of the mothers (95%) mentioned that they aware about the meals consumed by the child every day, however 74% of them reported that they were not aware about the nutritional values. In contrast to that, most of the fathers (58%) in the study area were not aware about their child's meals. It is obvious that most of the fathers are spending more time at other villages for the income earning activities. They are leaving at early morning from their houses and return during late evening. This is the reason for this unawareness of their child's diet consumption. Further, some mothers (20%) mentioned that they were advised by the midwives regarding the diets for their children. Almost all the mothers reported that they are adding Thiriposa as a healthy food in their diet occasionally. However, they are lack in awareness (43%) on the healthy and unhealthy food items for their child.

**CONCLUSIONS**

Understanding children's eating attitudes and the nutritional value of their meals are very important in terms of children's growth and development. Awareness on nutritious food item by the parents may reduce the food cost and improve their child health. Diversity in

diet consumption was very poor in study area. Importance of having different food item in their day to day consumption need to be improved. As there are lack of awareness on nutritional value of the children's diet among the parents, it is important to create awareness or educate the parents on diet composition and nutritional value of their child's diet.

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