

Original Articles

A survey of breakfast practices of 4-12 year old children

M P Senanayake¹, H M L N Parakramadasa²

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Abstract

Objectives To assess time of intake of breakfast and choice of food consumed by school children, identify underlying reasons for prevailing breakfast practices and describe the knowledge and attitude of mothers about the nutritional needs of their children in relation to breakfast.

Study design A descriptive cross sectional study using an interviewer administered questionnaire.

Study setting A medical ward at Lady Ridgeway Hospital for Children, Colombo

Study population Children aged 4-12 years, admitted to the professorial ward with an acute illness of less than three days duration between 1st December 2006 and 28th February 2007. Exclusion criteria were severe or chronic illness, food allergy, dietary restrictions, special diet schedules, growth abnormality/ties or developmental delay.

Method A modified food frequency questionnaire was used to gather data on demographic and dietary details. Consumption patterns of five commonly eaten food groups were investigated based on dietary recall. Portion sizes and nutritive values were not assessed.

Results Of a total of 220 children, 96% were school-going. Majority (81%) were resident in the Western province and were represented by Sinhalese (79.5%), Tamils (10.5%) and Muslims (10%). All mothers were literate and 60% had studied up to or above GCE (O Levels). In 80% monthly family income was above Rs. 8000. Population studied comprised mostly of primary school children. Male to female ratio was 1:1.08 and no significant differences in breakfast practices or nutritional status were found between sexes.

¹Professor, Department of Paediatrics, Faculty of Medicine, University of Colombo, ²Registered Medical Officer, Lady Ridgeway Hospital, Colombo.

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Of 211 school children, only 63 (30%) ate breakfast and 70% left home without breakfast. First food consumed by 90% was a beverage i.e. tea with milk (70%), full cream milk (16%). Rice or rice flour based cooked food was consumed by 51% and wheat flour based foods by 36%. Home cooked meals were provided for 85% of children but 67% preferred to eat fast foods. No significant difference was found in breakfast practices between the underweight and normal weight children.

All mothers said “breakfast is essential” but only 64% thought that a balanced meal was necessary for breakfast. Fast foods were the most liked food items and wheat flour based items came next. Rice was the first preference in only 18%.

Conclusions Majority of children left for school without breakfast and ate during the mid- morning break. Although home cooked rice meals were provided the preferred breakfast food was bread or wheat flour based foods. Fast foods were the most liked food items. Intake of fruit was very low among school children surveyed. We recommend that schools either provide breakfast or time for consuming the food that was brought from home, before start of lessons.

Introduction

Breakfast is the first and probably the most important meal of the day. In addition to providing energy, it improves mental powers and concentration, IQ, and participation in physical activities^{1,2,3}. One fourth to one third of the daily recommended nutrients are expected to be provided with breakfast⁴ but changing life styles and altered food consumption patterns may cause children to miss out on this all important meal. We investigated the breakfast practices of a cohort of children aged 4 – 12 years. The knowledge and attitude of mothers towards their child’s eating behaviour, nutritional needs and the association between socio-demographic factors and food habits are also described.

Objectives

- To assess time of intake of breakfast and choice of food consumed by school children.
- To identify underlying reasons for prevailing breakfast practices.
- To describe the knowledge and attitude of mothers about the nutritional needs of their children in relation to breakfast.

Study design

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Children aged 4-12 years, admitted to the professorial ward with an acute illness of less than three days duration between 1st December 2006 and 28th February 2007. Exclusion criteria were severe or chronic illness, food allergy, dietary restrictions, special diet schedules, growth abnormality/ties or developmental delay.

Method

All children between 4-12 years, admitted for indoor care to the Professorial paediatric ward with an acute illness of one to three days duration, were serially enrolled after obtaining informed consent from their parents or guardians. Those with chronic illness (including bronchial asthma), food allergies, medically indicated dietary restrictions, special diet schedules, abnormalities of growth or delay in development, and patients who were severely ill, were excluded.

A modified pre-tested food frequency questionnaire was used by one of the co-authors who visited the ward daily to interview mothers on demographic and dietary details. Dietary recall was used to assess food frequency. Food preparation, nutritional knowledge and attitude towards breakfast, frequency of consumption by the child

during times of good health of specified food over an average week, in the past three months were recorded, based on dietary recall. Consumption patterns of commonly eaten items starting from the first food or beverage in the morning until the first proper solid meal were described according to five groups of food items. Frequency of intake was graded into four categories varying from “never or less than once a week to four or more times a week”. Portion sizes and nutritive components of mixed dishes were not assessed. Ethical clearance was obtained from the Ethics Review Committee of the Faculty of Medicine Colombo and MS EXCEL used for data analysis.

Results

The study involved 220 children of whom 211 (96%) were school-going. Majority (81%) were resident in the Western province and all major ethnic groups in the country were represented; Sinhalese 176 (79%), Tamil 24 (11%) and Muslim 20 (10%). All mothers interviewed were literate and 60% were educated up to or above GCE (O Levels). The family income was above Rs. 8000 per month in 80% (Table 1). Population studied comprised mostly of primary school children. Age distribution is shown in Table 1. Male to female ratio was 1:1.08 and no significant differences in breakfast practices or nutritional status were found between sexes. Nutritional status was within 3rd and 97th centiles for age in 80% in height and 60% in weight in the children studied

We found that of the 211 school children, only 63 (30%) ate breakfast before leaving home. On waking up the first food consumed was a beverage in 199 (90%) and most frequently consumed items were “tea with milk” 154 (70%), full cream milk 35 (16%), and plain tea 9 (4%). The food frequency questionnaire assessed the daily intake of the first meal categorized into five major food groups (Table 2). Rice or rice flour based cooked food was the most frequently consumed food item, by 111 (51%) and wheat flour based foods came next, 79 (36%). Home made meals were provided by 188 (85%) of respondents, but 147 (66.8%) of the participating children preferred fast foods. We found the intake of fruit at breakfast to be very low with 138 (70%) never consuming fruit in the morning. A further 38 (17%) said their weekly intake of fruit was on less than two mornings.

Table 1
Demographic characteristics of child participants (n=200)

	Number	%
Age (yrs)		
4 to 5	46	20.9
5 to 10	138	62.7
10 to 12	36	16.4
Ethnicity		
Sinhalese	176	79.5
Tamil	24	20.5
Muslim	20	10.0
Level of schooling		
Not schooling	09	4.1
Nursery school	37	16.8
Primary school	138	62.7
Secondary school	36	16.4
Mother's education		
None	06	2.9
Grade 1-5	15	6.8
Grade 6-9	46	20.9
GCE (O Level	86	39.1
GCE (A level)	59	26.8
University	08	3.7
Family income (SL Rupees)		
Below Rs. 3000	0	0
Rs 3000 - Rs 5000	18	8.2
Rs 5000 - Rs 8000	26	11.8
Rs. 8000 – Rs 10,000	64	29.0
Above Rs. 10,000	112	51.0
Mother's employment		
Housewife	179	81.4
Full/ part time employment	41	8.6

Table 2
Breakfast Practices (n=220)

	Number	%
Type of beverage taken on waking (>=4 d/wk)		
Full cream milk	35	15.9
Tea with milk	154	70.0
Plain tea	09	04.1
Others (eg <i>Kola kenda</i>)	01	0.5
None	21	09.5
Most frequently consumed food item		
Rice or rice based food (<i>Hoppers, string hoppers, kiribath, pittu etc</i>)	111	50.5
Bread or wheat flour based food (<i>Buns, biscuits, roti etc</i>)	79	35.9
Pulses (<i>Green gram, cowpea</i>)	21	09.5
Fast food (<i>Rolls, pastries, patties</i>)	08	03.6
Tubers and roots	01	0.5
Most preferred food item		
Fast foods	83	37.7
Wheat flour based food	64	29.1
Rice flour based food	40	18.2
Pulses	18	08.2
Ready-mix cereals (<i>Samaposha, Thriposha</i>)	15	06.8
Weekly fruit intake		
4 or more days	05	02.3
2 – 3 days	23	10.5
Less than 2 days	38	17.1
Never	154	70
Place of consuming first meal		
Before leaving home	63	29.9
On way to school	01	0.5
At school (Before bell)	14	06.6
At school (During interval)	133	63
No breakfast taken	0	-

Of 148 (70%) children who left home without breakfast; 133 (63%) ate the first meal during the mid-morning school break. A further 14 (6.6%) ate “before the first bell”, and one (0.5%) ate “on the way to school”. The number starting school without consuming a solid meal was 133 (63%). Three children said breakfast was served by the school. Another had this provision only on one day, each week. The 133 children who ate during the school break gave the following reasons for leaving

home without breakfast: “No appetite or not hungry after morning beverage” 98 (73.5%), “Do not like to eat very early in the morning” 29 (22%) and “No time” 6 (4.5%). Seventy five (34%) left home before 7 am and a further 51% left between 7 and 7.30 am.

Maternal awareness on importance of breakfast was high. All mothers said that “breakfast is essential” and 97% said it was “no less important than lunch”.

However only 141 (64%) thought that a balanced meal including fruits and vegetables should be consumed for breakfast. All mothers rated rice or rice flour based meals as better than wheat flour based foods in terms of nutrition and health. None thought that fast foods were healthy (Table 3).

Even though rice based food items were the most commonly prepared breakfast, fast foods were the most liked food items by 147 (66.8%). Wheat flour based items were also preferred to rice by 64 (29%). Rice was the first preference by only 40 (18%) of children.

Table 3
Knowledge, attitude and practices of mothers regarding breakfast (n=220)

Breakfast is essential		100%
Breakfast is as important as lunch		97.1%
Breakfast should be a balanced diet inclusive of vegetables and fruits		64.4%
Rating as most suited for breakfast		
Rice based food		100%
Wheat flour based food		
Fast foods		
Availability of time to prepare breakfast		
Had time to prepare breakfast	165	75.0%
Unemployed	39	17.7%
Employed		
No time to prepare breakfast	14	6.4%
Unemployed	2	0.9%
Employed		

Discussion

We found that the proportion of school children leaving home without breakfast was as high as 70%. Sixty three percent began the school day without eating a solid meal. Breakfast is known to increase attention, memory, test scores, motivation as well as physical performance in school children. It is therefore important that the current situation is remedied without delay.

The age group represented in our study was mostly primary school children. The reasons for not eating breakfast were directly or indirectly related to the early time of day. One third of children left home before 7.00 a.m. some as early as 6.00 a.m. and almost all before 7.30 a.m. There were many different reasons expressed for lack of time and even when they lived not far from the school, they left early and spent considerable lengths of time on the road before reaching their destination, because the school vans arrived very early.

Children who skipped breakfast told us they ate a snack or meal during the mid-morning break; this was unsupervised and the mother's were unsure of the intake. Schools providing breakfast was a rare occurrence. We recommend that schools provide supervised time to eat food brought from home, before the start of the first lesson.

Thirty seven percent of children who took breakfast in the break and 41% of those who ate before school were underweight. There was no significant association between the proportion of underweight children and the time of eating breakfast. (chi square value 0.364, $p > 0.05$) Limitations of this study are the lack of assessing quantities consumed and nutrient composition of commonly eaten food. Our overall finding was that rice and curry cooked for lunch was often served or packed as breakfast, and rice, the staple food of our country is the most commonly eaten ingredient for breakfast. In comparison with a previous study carried out in Kuliypitiya, (a town in the North Western Province of Sri Lanka), we found school children to consume rice and rice flour based meals less

commonly; and comparatively more children ate bread or wheat flour based foods⁵.

Childhood dietary habits are a significant determinant of adult diet⁶. Our finding that majority of children prefer to eat wheat flour based foods rather than the traditional breakfast is of concern with possible long term repercussions. Missing breakfast may encourage eating of less wholesome foods, and make fast foods and snacks a habit.

Diets of children should be viewed seriously because it can determine the health of an entire nation⁷. Many schools will claim they do not have sufficient resources to provide breakfast, which is a solution for children starting lessons on an early stomach. Unfortunately political will on this issue has waxed and waned in momentum before and after elections. We recommend that educational authorities play an active role in solving the problem of bad breakfast practices among school children, since it can lead to long term educational and health implications.

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