

## **Evaluation of the School Supplementary Feeding Program in Peninsular Malaysia**

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### **ABSTRACT**

This study was conducted to evaluate the implementation of the School Supplement Feeding Program (SSFP) among primary school in terms of financial management and budget disbursement, food preparation, selection of menus and nutrient content of food served. A total of 129 schools comprising 77 national type, 31 Chinese and 21 Tamil vernacular schools in four different regions (northern, eastern, central and southern) of Peninsular Malaysia were selected for this study. The results of this cross-sectional study showed a need to improve the budget disbursement to schools. Most of the schools followed the guidelines provided by the Ministry of Education for selection of eligible children. The quality of food prepared by contracted (local community members) and voluntary (teachers) operators. The use of 10 recommended menus provided for a 2-week cycle by most of the schools has shown increased acceptance and less monotonous feeling towards the food among the children. Nutrient content of food served increased relatively with an increase in budget from RM0.45 to RM0.80 per child. Parents surveyed indicated that the program should continue as this will keep children from low income families from being hungry during school hours. A continued process of monitoring and evaluation is necessary to improve its implementation.

### **INTRODUCTION**

The school Supplementary Feeding Program (SSFP) in Malaysia is an integrated effort carried out in conjunction with the nutrition and health programs in primary schools. The SSFP was initially carried out by the British Military Army (BMA) after World War II as an emergency relief fund (Ministry of Education, 1986). In 1964, the agencies involved in SSFP were voluntary welfare bodies such as Malaya Children Welfare Association and statutory bodies such as Federal Land Development Authority (FELDA). At that time, food aid was sponsored by the Catholic Relief Service of America, under the Catholic Welfare Service of Malaysia. In 1974, the SSFP was carried out by the Selangor State Government under the Applied Food and Nutrition Program (AFNP) in Hulu Langat district and soon after, this program was extended to other districts in the state. In 1976, the Malaysian Government formally initiated the SSFP in conjunction with a pilot project of the National AFNP under the Prime Minister's Department

covering 12 districts in six state. By 1979, the program was extended to all districts in every state in Malaysia under the Ministry of Education. At that time, only schools with a population of 200 or less were entitled for SSFP. In 1989, the program was extended to all schools irrespective of the number of students (Ministry of Education, 1993).

The main objective of SSFP is to improve the health and nutritional status of children, especially those from the rural areas, through a provision of a wholesome and balanced meal. Other objectives are:

- a. To improve health and food habits and to prevent the occurrence of malnutrition among school children
- b. To educate children on food selection
- c. To encourage the participation of parents, teachers and public in the welfare of the school
- d. To strengthen health and nutrition programs in schools

There have been previous studies on the implementation of SSFP in Malaysia. The Ministry of Education Malaysia (1984) study reported that the allocation of RM0.20 per child at that time was insufficient due to a price increase in raw materials. Another study by Ministry of Education Malaysia (1986) reported poor budget disbursement to the schools as a result of late payment received by the food operators from the schools. Kandial (1990) in her study in Sepang and Temerloh reported that scholastic performance, as assessed by marks obtained during end-of-term examinations, especially in arithmetic was suggestive of an improvement among children receiving the supplement. A study carried out by the Terengganu State Education Department (1994) in 1992 found that the quality of food served in 254 schools out of 261 schools in the whole state was well-prepared and served in an attractive manner.

Since 1995, children selected under SSFP are entitled to have their meal everyday for 150 school days, compared to 135 school days prior to 1995. Likewise in 1995, the budget allocation per children increased from RM0.45 to RM0.80 in Peninsular Malaysia, and from RM0.50 to RM0.85 in Sabah and Sarawak. The main reason for the increase has been primarily due to the increase in cost of ingredient for SSFP. Also in 1995, a total of 20 menus was introduced to all participating schools compared to 10 menus previously. Each menu preparation was meant for 10 serving sizes. Schools were given the option to use all the 20 or to select menus that were acceptable by the children. The menus were acceptable by the children. The menus introduced were better with respect to ingredients, methods of preparation and recommended serving size (Ministry of Education, 1995).

The general objective of this study was to evaluate the implementation of SSFP in the primary schools. The specific objective were:

- a. To evaluate the financial management and budget disbursement of SSFP
- b. To evaluate the management of food preparation in SSFP
- c. To observe the types and acceptance of the food served to supplemented school children
- d. To evaluate the nutrient content of food served

## **METHOD**

### **Selection of study area**

This cross-sectional study was part of a larger study to assesses the implementation of SSFP and nutritional status of supplemented school children in four regions of Peninsular Malaysia namely northern, eastern, central and southern. However, this paper will only report the implementation of SSFP from the four regions. Discussions were held with officers from the School Health Unit, Division of Schools, Ministry of Education and State Education Departments to assist in the selection of areas for the study. The study covered at least one urban and one rural area in each region in order to have an adequate number of schools. In this study, the Northern region was represented by Kota Setar and Kuala Muda/Yan districts in the state of Kedah, while Kota Bharu and Kuala Krai districts in the state of Kelantan represented the Eastern region. The Central region was represented by Kuala Lumpur and Petaling and Hulu Langat districts in the state of Selangor, while Kluang and Muar districts in the state of Johor represented the Southern region.

### **Selection of school**

The selection of schools was done through discussions held with the officers from the State Education Department and District Education Office in each region. The schools were selected based on high enrolment coverage of school children receiving the SSFP and distance from survey team's base. The high enrolment criteria was to enable each child in the supplement group to be matched by sex and year with a child not receiving supplementary food. The coverage was to be less than 50% of the total school population in order to have a sufficient number of samples in the unsupplemented group matched with samples in the supplemented group. Each study area consisted of all three types of schools namely National type, Chinese and Tamil vernacular. A total of 129 schools (77 National type, 31 Chinese and 21 Tamil vernacular) were selected for this study (Table 1).

Table 1. Distribution of schools selected for the study

Region	Number of schools			Total
	National type	Chinese vernacular	Tamil vernacular	
Northern				
Kota Setar	8	4	3	15
Kuala Muda/Yan	8	4	3	15
Eastern				
Kota Bharu	12	3	0	15
Kuala Krai	13	1	1	15
Central				
Kuala Lumpur	8	4	3	15
Petaling	6	4	3	13
Hulu Langat	6	3	2	11
Southern				
Kluang	8	4	3	15
Muar	8	4	3	15

Total	77	31	21	129
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### **Selection of subjects**

Subjects involved in this study were primary school children aged 7-12 years, parents, headmasters/mistresses, heads of the school committees, teachers and food operators. The survey on school children and parents was done only in 10 schools of each district except for Petaling and Hulu Langat Districts where 9 schools were studied. Stratified random sampling was used for the selection of children in each of the schools studied. Subjects were selected from the list of all enrolled children prepared by the school committee. The list contained the monthly income of the child's parents as well as family size and distance of their home to school. A total of 36 children under SSFP per school were randomly selected from Year 1 to Year 6. Six children were selected from each year and trained enumerators interviewed each child using a questionnaire set consisting of multiple choice and open-ended questions. A questionnaire pertaining to the child's family background and the family's acceptance of the food serves under SSFP such as the condition of food served (hot or cold), ability of the child to finish the food, serving size (sufficient or insufficient) and overall acceptance of the child towards the food served was also sent to parents of the selected children. The questionnaire was pre-tested outside the sampling frame prior to drawing up a final draft.

The participation of parents was based on the returned completed questionnaire sent through their children on the day study was conducted. Parents were asked on their family background and their general knowledge and attitude towards the SSFP. The completed questionnaires were then collected by the class teachers on the following day and forwarded to the researchers 1-2 weeks later.

A questionnaire set was also given to the headmaster/mistress, heads of school committees, schoolteachers and food operators in each of the schools studied. A total of 10 teachers (directly or indirectly involved in SSFP) was selected randomly by the head of the school committee in each school studied. The questions covered aspects of implementation of SSFP which included financial management and budget disbursement, selection criteria for eligible children, food preparation and selection of menus. Apart from the questionnaire, an open interview was also conducted with the headmaster/mistress, head of school committee and food operator of each school to obtain subjective information about the implementation of the program. The participation of respondents is shown in Table 2.

### **Nutrient content**

Nutrient content of SSFP menus with an allocation of RM0.45 (Aminah *et al.*, 1995) was compared with menus with allocation of RM0.80. Only five menus obtained from the schools in Hulu Langat District were selected for this study. Food samples obtained were recorded and later converted into grams. Nutrient content of each sample was calculated using the Malaysian Food Composition Table (Tee *et al.*, 1988). The amount of nutrient intake through analysis of the food was then compared to the Malaysian Recommended Dietary Intake (RDI) (Teoh, 1975).

## Statistical analysis

Data were analysed using the Statistical Analysis System Version 5.0 (SAS-PC+) computer program. Descriptive statistics are used to present the results.

Table 2. Distribution of respondents

District	Respondent n (%)					
	SC	P	H	HSC	T	FO
Kota Bharu	347 (96.4)	327 (90.8)	15 (100.0)	15 (100.0)	127 (84.7)	12 (80.0)
Kuala Krai	347 (96.4)	250 (69.4)	15 (100.0)	15 (100.0)	127 (84.7)	15 (100.0)
Kuala Lumpur	340 (94.4)	173 (48.1)	10 (66.7)	14 (93.3)	112 (74.7)	12 (80.0)
Petaling	306 (94.4)	202 (62.4)	10 (76.9)	12 (92.3)	95 (73.0)	10 (76.9)
Hulu Langat	324 (100.0)	181 (56.0)	11 (100.0)	10 (90.9)	97 (88.0)	10 (90.9)
Kluang	348 (96.7)	215 (59.6)	14 (93.3)	14 (93.3)	109 (72.7)	15 (100.0)
Muar	360 (100.0)	230 (63.9)	13 (86.7)	13 (86.7)	111 (74.0)	13 (86.7)
Kota Setar	355 (98.6)	318 (88.3)	12 (80.0)	15 (100.0)	132 (87.9)	14 (93.3)
Kuala Muda / Yan	357 (99.2)	221 (61.4)	15 (100.0)	15 (100.0)	115 (76.7)	15 (100.0)
Total	3084 (97.3)	2117 (66.8)	115 (89.1)	123 (95.3)	1025 (79.5)	116 (89.9)

SC = supplemented children  
H = headmasters/mistresses  
T = teachers

P = parents  
HSC = heads of school committee  
FO = food operators

## RESULTS AND DISCUSSION

### Financial management and budget disbursement

The financial and account management of this program includes the supervision and updating of cash book and bank account, voucher payment, bank statement and also the monthly and yearly income and expenditure statement of the SSFPs. The headmaster/mistress was requested to check and update the cash book at the end of every month to endorse the balance in the cash book. Besides, the headmaster/mistress is also responsible for the preparation of the budget estimated every year which needs to be submitted to the District Education Office and State Education Department to enable them to claim the expenses of the following year (Sharil @ Chairil, 1993).

Prior to the allocation of the School Supplementary Feeding Program (SSFP) budget to each school, the school prepares a list of eligible students which is then submitted to the District Education Office and on to the State Education Office. At state level, the school budget is collated and sent to the Ministry of Education Office. At state level, the school budget is collated and sent to the Ministry of Education. At this level, the allocated budget is prepared by the Division of Finance and Accounts, Planning Unit and redistributed to each school, the school prepares a list of eligible students which is then submitted to the District Education Office and on to the State Education Office. At state level, the school budget is collated and sent to the Ministry of Education. At this level, the allocated budget is prepared by the Division of Finance and Accounts, Planning Unit and redistributed to each state. The rate of allocation per child is determined by the Ministry of Education depending on the availability of funds. The funds are then released to the school either in one warrant (150 school days) or two warrants (the first 50 school days and the remaining 100 school days), primarily depending on the management team of the State Education Department of each state.

Results of this study showed that the disbursement of allocated budget in a single lump sum to school was preferred compared to twice a year as this helps avoid delays in settling claims from food operators. It was observed that when schools took more than 50 days to settle claims, the cash flow of food operators was affected. As their operations were small, delayed settlement of claims affected their limited financial capacity which in turn made it difficult for them to meet the recommended quality in the menus served. Thus, receiving payment in a single lump sum payment allowed the school administration to make payments to the food operators more regularly, on a monthly or weekly basis, instead of at the end of the school term.

### **Selection of eligible children**

Prior to selection of eligible children, income form “Maklumat Murid” is given to the parents of children. Information on income of parents and the size of the family was sought. The form then was submitted to the classroom teacher who then selected eligible children based primarily on the income and family size, and submitted it to the head of the school committee.

The guidelines for the selection of eligible children were provided by the Ministry of Education namely parent/family income, number of siblings, distance from home to school and physical/health status of children. If the family had a monthly income of below RM150 or per capita income of less or equal to RM100, the child was automatically selected. Besides the guidelines criteria, other criteria were also considered by the schools such as children with excellent academic records, orphans, children whose academic performance was poor and children with a family problem (divorced parents etc.) (Table 3). In cases where more than one child from the low income family was attending school, preference was given either to the youngest or the one who appeared ‘weak’ while the older child would be placed in the reserve list; occasionally the school committee would decide, if need be, to select all or both the siblings.

The list of eligible children were then checked and validated by the school committee which may or may not meet with the Parents and Teacher’s Association (PTA) to seek approval. Following approval, the classroom teacher and the eligible children were then notified, as well as their parents through an official letter. A reserve list of five children was also prepared for each class

based on the same eligibility criteria. These children received the supplementary food only when a recipient was absent on the day.

Most of the schools studied followed the guidelines provided by the Ministry of Education (Table 3). The majority of the parents/family surveyed had an income of RM300-500 (23.0%) or between RM500-700 (39.0%). Thus income level of RM150 as a criteria for inclusion in the program is no longer applicable. There is thus a need to revise the income criteria level currently used. This study also found that 75.0% of the participants had 3-5 or 6-8 siblings, with 69.0% of them staying less than 3 km away from the school. For the physical/health status criteria, children with visible signs of malnutrition such as being weak and pale looking were selected for inclusion in the program; but this required certification by a physician.

Table 3. Selection criteria of eligible children by schools

Criteria	Percentage n (%)
<b>Main Criteria</b>	
Parents/family income	129 (100.0)
Number of siblings	76 (58.9)
Distance from home to school	57 (44.2)
Physical/health status of children	51 (39.5)
<b>Additional Criteria</b>	
Academic excellence	16 (12.4)
Orphans	20 (15.5)
Children with poor academic performance	8 (6.2)
Children with family problem (divorced etc.)	18 (13.9)

### **Food preparation**

Food preparation for this program was mostly undertaken by canteen operators (84.5%) as shown in Table 4. In the case of rural schools where the number of pupils was small (less than 200) and which did not have a canteen, food preparation was contracted out (14.7%) to local community members. There was only one school (Kuala Krai) where food for the program children was prepared voluntarily by the school teachers.

The involvement of canteen operators in this program may be attributed to accessibility. The school administration could discuss about the implementation of the program, check the quality of raw materials used and also the sanitation of workers, utensils used, and the food preparation area. Besides, the operators had experience in preparing food for the SSFP previously and had build up their own serving and cooking facilities. Study results found that the contract with the operators is renewable after a period of 1-2 years. This study also found that 65.0% of the food operators were selected by the school's SSFP committee members.

Generally the quality of food prepared by the food caterers and voluntary personnel (teachers) was found to be better than those prepared by canteen operators. This finding is similar to that previously reported by the State Education Department of Terengganu (Terengganu State Education Department, 1994). The reasons were that canteen operators operated at a higher cost

which include paying rental of working premises, workers, and using their own serving and cooking facilities. Other than the above reasons, the food for SSFP was prepared in bulk and at the same time, it was sold to the other non-SSFP school children at the canteen. Meanwhile for contracted and voluntary operators, the food was prepared at their home outside the school compound, and brought to the school in bulk. The food was then served either by the food operators or school teachers using the serving facilities provided by the school.

Table 4. Food operators involved in the SSFP

Type of food operators	Number	Percentage (%)
Contract (canteen operators)	109	84.5
Food caterers (contracted out to some of the local community members)	19	14.7
Voluntary (school teachers)	1	0.8

### Selection of menus

Since 1995, 20 different set of menus have been introduced to all schools by the Ministry of Education for use in the SSFP program in order to introduce variety and avoid monotony in the food served to the children (Ministry of Education, 1995). Every school is given the freedom to select 10 out of 20 recommended menus to be used for this program. The school administration would usually hold prior discussions with food operators on the selection of particular menus in relation to the recommended cost (RM0.80), availability of raw materials and overall acceptance of the food by the children. The decision would then be relayed to the school's SSFP Committee which is chaired by the headmaster/mistress or head of school committee for approval. The ten most popular SSFP menus selected by the schools are shown in Table 5. The recommended menus were modified if the acceptance rate among the school children was poor. For example, savoury wheat porridge would be modified to sweetened wheat porridge (Table 6).

Result on the usage of new recommended menus provided by the Ministry of Education showed that most of the schools used 10 of the 20 menus for a 2-week cycle to provide variety to the school children. There were also cases where the food operators served menus which were not in the list provided by the Ministry but which were accepted by the school children. Example of the menus were fried noodles, curry noodles, bihun soup and laksa. There were only two schools (one each at Kuala Lumpur and Petaling) which used all the 20 recommended menus for a 4-week cycle.

The success of such programs has been reported to depend on the appropriate selection of the menus (Gleason, 1995). However, other factors that contribute to the ability of children to finish the food given are communal eating (Horne *et al.*, 1995) and their hunger status: hungry children will probably eat anything presented to them (Birch, 1980). Davidson (1979) reported that evaluation of success for much programs in the past had been based on measurements of plate waste, with physical and cultural environment being important factors in determining the level of food acceptance. These factors include supervision of eating by teachers, schedule of eating,

teachers eating the same food as children and the degree of enthusiasm expressed by teachers for eating at school.

**Table 5.** Ten most SSFP popular menus selected by the schools

Menu
Nasi lemak
Fried bihun <sup>c</sup>
Fried rice <sup>c</sup>
Chicken rice <sup>e</sup>
Vegetables dalca, egg and rice
Vegetable soup, boiled egg and rice
Chicken rice porridge
Mee rebus
Mixed rice <sup>e</sup>
Roti canai and dhal gravy

<sup>c</sup> = cost between RM0.50 to RM0.80

<sup>e</sup> = minimum cost RM1.00

**Table 6.** Modifications made on recommended menus

Original menu
Roti canai and Sardine gravy
Savoury wheat porridge
Bread and chicken stew
Modified menu
Roti canai and dhal gravy
Sweetened wheat porridge
Bread and chicken curry
Bread and chicken soup

The budget allocation determined by the Ministry of Education takes into account other materials including manpower and transportation. In this study, the cost of most SSFP's menus were found to be less than RM0.80 per serving except for Chicken Rice, Mixed Rice and Bread with Chicken Curry which were more than the allocated amount (a minimum cost of RM1.00). The cost per serving of the cheapest menus ranged between RM0.50-0.60 and these include Fried Bihun, Fried Rice, Fried Noodles and Bean Porridge with Cream Crackers. Therefore in order to prepare the food within the allocated budget, it was possible for the food operators to have a combination of less expensive and more expensive menus. However, the profit margin is minimal or merely covers the cost, especially for the schools located in urban areas, where only a small number of children are involved in SSFP (less than 50 children).

Most of the schools studied served the food either before the school session starts (Northern and Eastern region) or during recess time (Central and Southern region). Food serving time basically depended on the culture and lifestyle of the local community. For example in the Northern and Southern regions, it is normal to have a 'heavy meal' such as rice early in the morning. According to Getlinger *et al.*, (1996), children could pay more attention, achieve more, and have

a more positive school experience when they are not hungry. Meanwhile in Central and Southern regions, the food under SSFP was served during the recess, assuming that children already have their breakfast (morning session) or lunch (afternoon session) at home before coming to school. Thus, it allows the children sufficient time to pass through the meal line and eat without rushing (Read & Moosburner, 1985). Most of the schools used coupon or card system to determine the attendance of children receiving food under the SSFP. Portion size of meals for all aged groups (7-12 years) in this study was found to be the same. This was done through observation during meal time and by interviewing the headmaster/mistress of the school, as well as the head of school committee and food operators.

### Food acceptance

The majority of the school children (99.0%) were happy and liked the food provided under SSFP (Table 7). The use of number of menus recommended by the Ministry has resulted in an increased acceptance rate, as it has led to variety in food served.

### Knowledge and attitude of parents

In relation to knowledge and attitude of parents towards SSFP, the study found that most of the parents were aware of the program through letters sent by the schools or after having been informed by their children. Though more than 90% of them did not know the objectives of the program, they agreed that the program should be continued in the future. Thus, the children will have something to eat when no spending money is given to them or, when they do not have breakfast at home (Kandiah, 1990). It is suggested that parents be briefed on benefits of the program through seminars, talks and workshops. This will increase their awareness of the importance of a balanced meal for their children to ensure optimal growth and a better nutritional status for their children (Nelsen, 1992).

Table 7. Food acceptance by school children (n=3084)

Acceptance of food by school children	Percentage n (%)
Like	2991 (7.0)
Dislike	93 (3.0)
Enough	2924(94.8)
Not enough	160 (5.2)
Eaten all	2732(88.6)
Partially eaten	352(11.4)

### Nutrient content

Table 8 shows the comparison of nutrient content of food served under SSFP menus with budget allocations of RM0.45 and RM0.80. The study found that the increase in budget allocation saw a concurrent increase in nutrient content in food served. However, some of the menus did not meet the recommended nutrient contents level of  $\frac{1}{4}$ - $\frac{1}{3}$  Malaysian RDI in relation to thiamine, riboflavin, niacin and calcium. The low level of such vitamins in the food may be due to the

method of food preparation and cooking, which in turn is influenced by other factors. For example, vitamin losses during cooking are greatest when high temperatures are used, when large surface areas of the food are exposed to water and if food is agitated during cooking. This means that practical measures to reduce vitamin losses include cooking at the lowest possible temperature for the shortest time feasible, cooking in minimal amount of water, cooking at just below boiling point to reduce agitation of the food and cutting the food into pieces that are neither large (taking a long time to cook) nor small (exposing a large surface area). As thiamine, riboflavin and niacin are included in the water-soluble vitamin category, losses in cooking water can be expected (Guthrie and Picciano, 1995). Besides, less use of animal and plant food source such as meat, eggs, green leafy vegetables, legumes and cereal in food preparation would well be the reason for the low levels of vitamins and calcium in these foods (Cheng, Suriah & Aminah, 1988).

**Table 8.** Comparison of nutrient content of SSFP menus served with allocations of RM0.45 and RM0.80 (mean  $\pm$ SD)

Nutrients	National type		Chinese vernacular		Tamil vernacular		<sup>1/4-1/3</sup> *Malaysian RDI
	RM0.45	RM0.80	RM0.45	RM0.80	RM0.45	RM0.80	
<b>Macronutrients</b>							
Food energy (kcal)	220 $\pm$ 76	366 $\pm$ 89	240 $\pm$ 57	636 $\pm$ 34	299 $\pm$ 46	400 $\pm$ 23	548-730
Protein (g)	5.96 $\pm$ 1.85	11.63 $\pm$ 3.93	7.15 $\pm$ 1.48	20.04 $\pm$ 3.4	6.9 $\pm$ 1.52	9.89 $\pm$ 1.54	8.15-11.67
<b>Vitamins</b>							
Vitamin A ( $\mu$ g RE)	11.8 $\pm$ 13.8	190.6 $\pm$ 60.8	525.6 $\pm$ 65.9	297.4 $\pm$ 45.6	49.9 $\pm$ 10.3	279.2 $\pm$ 30.6	100-133.3
Thiamine (mg)	0.08 $\pm$ 0.07	0.18 $\pm$ 0.10	0.07 $\pm$ 0.03	0.22 $\pm$ 0.08	0.17 $\pm$ 0.07	0.14 $\pm$ 0.07	0.25-0.3
Riboflavin (mg)	0.09 $\pm$ 0.05	0.22 $\pm$ 0.19	0.12 $\pm$ 0.09	0.37 $\pm$ 0.08	0.23 $\pm$ 0.03	0.2 $\pm$ 0.03	0.33-0.43
Niacin (mg)	1.13 $\pm$ 0.81	2.7 $\pm$ 1.65	1.83 $\pm$ 0.83	2.94 $\pm$ 0.19	1.28 $\pm$ 0.95	2.65 $\pm$ 0.12	3.63-4.83
Vitamin C (mg)	0.76 $\pm$ 0.60	17.8 $\pm$ 9.13	2.29 $\pm$ 2.1	25.7 $\pm$ 2.1	1.35 $\pm$ 0.8	14.1 $\pm$ 2.13	5-6.7
<b>Minerals</b>							
Calcium (mg)	30.3 $\pm$ 7.7	67.1 $\pm$ 13.2	27.1 $\pm$ 19.7	79.25 $\pm$ 9.41	35.8 $\pm$ 3.2	43.5 $\pm$ 7.75	11.23-150
Iron (mg)	4.18 $\pm$ 4.0	3.98 $\pm$ 1.65	3.16 $\pm$ 3.48	8.97 $\pm$ 1.63	2.16 $\pm$ 3.21	7.3 $\pm$ 1.23	2.5-3.3

\*Teoh (1975)

Based on the findings of this study, several recommendations are suggested in order to improve the implementation of the program:

- a. There is need to revise the income criteria as the current income level of RM150 used as a criteria for inclusion in the program is no longer applicable.
- b. The allocated budget per child needs to be revised from time to time in tandem with price increase of ingredients.
- c. The allocation of budget should be received in time by the schools so that the program can start off, right from the beginning of the term on notification to implement by the Ministry of Education.

- d. The SSFP should be given to all children for schools with a total population of 150 students and below.
- e. The school should be given the freedom to modify menus if they consider it necessary to enhance food acceptance by the children.

The results of this study indicate that the following problems have been encountered in the implementation of the SSFP among primary schools in Malaysia:

- a. Delay in receiving the allocated budget has led to loss of interest in food preparation by the food operators. This was because they would have used their own meager income to prepare food and late payments could adversely affect their cash flow.
- b. Food is sometimes prepared and portioned out too early, resulting in cold food being served, thus affecting the quality of food and its acceptability by children.
- c. An inferiority feeling is experienced by some children as this program is meant for poor children.
- d. Unsatisfactory water supply and insufficient basic facilities (such as canteen for children to eat) in certain schools, has made food preparation difficult.
- e. Teachers involved in managing the program experienced increased work load.

## **CONCLUSION**

The school Supplementary Feeding Program (SSFP) is one of the intervention strategies implemented by the government to improve the nutritional status of school children. There is a need to improve the budget disbursement to the schools in order to avoid delays in claims from food operators at this has an adverse effect on their cash flow. The increase in allocation per child from RM0.45 to RM0.80 to meet the rising cost has been well accepted, and this has led to an improvement in the nutritional quality of food served. The 20 recommended menus provided have increased the choices available and acceptability of food served under this program. Adjustments to food serving time is important in order to increase children's acceptance of the food. Parents favour this program and would like it to be continued in the future. Moreover, it is also suggested that this program may be useful in alleviating nutritional inadequacies experienced in the preschool years. Running such a program requires a good management structure to ensure efficient delivery and supplies to the right people at the right time. These findings can help improve the implementation of such programs in terms of management. A continued process of monitoring and evaluation is necessary to improve its implementation.

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