School-based Feeding Program for Undernourished Children in the Philippines

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ABSTRACT

Objective: The School-based Feeding Program (SBFP) was implemented in the Philippines in 1997. We clarified the current aims and situation of the SBFP and assessed this program.

Methods: One of the authors, who has worked in this country, received related documents and information. She also visited elementary schools to observe the SBFP and interviewed teachers and nurses to grasp the real situation.

Results: The SBFP aims to improve school attendance and the nutritional status of target beneficiaries, to conduct group hand washing and tooth brushing activities, and to encourage backyard vegetable gardening to support the feeding program. The target beneficiaries are all either wasted or severely wasted kindergarten to Grade 6 children in public educational institutions who were evaluated by nutritional assessment. With respect to improved school presence, growth of vegetables, and observed positive health habits and behaviors, the SBFP might be evaluated as a “well managed program”. Meanwhile, no nutritionists or dietitians are allocated in the schools, and no recommended nutritional intake values seem to have been established in the SBFP. Besides, the status of undernourished children remains unchanged and overweight or obese children have gradually increased. Concerning nutrition education, it is integrated in a specific subject, but sufficient textbooks and materials are not prepared.

Conclusion: The SBFP seems to produce good yearly achievements in terms of some original aims. However, nutritional problems of the students and the shortage of human resources remain. To promote positive health conditions in the children, improvement in these issues in the SBFP and further education are required.

Jpn. J. Nutr. Diet., Vol.76 Supplement 1 S98–S104 (2018)

Key words: Philippines, School-based Feeding Program, undernourished children

I. Introduction

School feeding programs (SFPs) were originally started for hungry children. In the most impoverished regions of the world, hunger is a serious problem and many people are hungry13. To deal with this unfavorable situation, the United Nations Millennium Declaration23 was adopted in 2000, and some goals, such as the eradication of poverty and hunger were established. In some cases, following this declaration, evidence has shown that SFPs have provided nutritional, health, and educational impacts on the diets and nutrition of school-aged children13.

The Republic of the Philippines (the Philippines) is a country with high incidence of poverty. It is an archipelago in the southwestern Pacific Ocean that includes some 7,000 islands. Geographical divisions are basically composed of a pyramidal structure, with 18 regions including an autonomous district or a metropolitan area, 81 provinces, and small government units called municipalities and barangays6. In 2015, the population was over one hundred million, and nearly 27% of the land in the country is used for agriculture, forest-related industries, or fisheries6. The gross domestic product (GDP) and GDP per capita in 2015 were about 2,925 hundred million US dollars and 2,858 US dollars, respectively, which have been gradually increasing year by year5 (Table 1). Concerning nutritional status, rates of stunted and underweight children are approximately 30%, though these rates have gradually decreased, and the rate of being wasted (W) has continued to increase since 20055 (Table 2).

To resolve these poor nutritional situations, the Department of Education (DepEd) in the Philippines has carried
out the School-based Feeding Program (SBFP)\(^7\)–\(^{13}\) and discloses the guidelines of the SBFP every year\(^8\)–\(^{13}\). According to them, the DepEd started its first feeding program in 1997, and its original aim was to provide breakfast for short-term hunger among public school children. That program was called the Breakfast Feeding Program (BFP). Through the next several years, this program gradually varied, with changes in the target beneficiaries, coverage, and service delivery mode\(^7\)–\(^{13}\). In particular, the program was renamed from the BFP to the SBFP and it functioned so as not to limit breakfast time in school years (SY) 2012–2013\(^{10}\). Moreover, the beneficiaries and budget were scaled up in the SY 2015–2016\(^{12}\) and 2016–2017\(^{13}\). In the newest guideline, the adaptation period of the SBFP has changed from every year to 5 years, though the evaluation is practiced every year\(^9\) (Table 3).

### Table 1  Current basic Information on the Philippines

| Size of land (km\(^2\))† | 299,404 |
|-----------------------------|---------|
| Population (number)† | 100,980,000 |
| Population density (number/km\(^2\)) | 337 |
| Average life span (men, age)† | 69.5 |
| Average life span (women, age)† | 73.9 |
| GDP (hundred million US dollar)† | 2,925 |
| GDP per capita (US dollar)† | 2,858 |

† Data from the Ministry of Foreign Affairs of Japan in 2015\(^4\).
‡ Data from the International Monetary Fund in 2015\(^5\).

### Table 2  Trends in under- and over-nutrition status among children (5–10 years old) in the Philippines, 2003–2015\(^6\)

| Year | Prevalence of malnutrition (%) |
|------|--------------------------------|
|      | Stunted† | Underweight‡ | Wasted§ | Overweight/Obese|| |
| 2003 | 36.4 | 32.1 | 7.4 | 5.8 |
| 2005 | 34.0 | 30.9 | 6.5 | 6.8 |
| 2008 | 33.9 | 32.4 | 8.1 | 6.6 |
| 2011 | 33.6 | 32.0 | 8.5 | 7.5 |
| 2013 | 29.9 | 29.1 | 8.6 | 9.1 |
| 2015 | 31.1 | 31.2 | 8.4 | 8.6 |

† Based on height for age index; children with height below the standard for child’s age.
‡ Based on weight for age index; children with weight below the standard for child’s age.
§ Based on weight for height index; weight below the standard for child’s height.
|| Based on weight for height index; weight above the standard for child’s height.

### Table 3  Changes in the Department Education Feeding Program\(^8\)–\(^{13}\)

| School Year (SY) | Process | Target (Number of target beneficiary/Number of total school children) | Contents |
|-----------------|---------|-------------------------------------------------|----------|
| 1997–1998       | First started. | Short-term hunger among public school children. | Breakfast Feeding Program (BFP) for Short-term hunger\(^1\). |
| 2011–2012       | Objective of the program was changed. (Pilot implementation) | Undernourished kindergarten to Grade 3 children in selected schools. | It shifted to address a more serious problem of undernutrition. |
| 2012–2013       | The program was renamed from BFP to SBFP. (Pilot implementation) | Severely Wasted (SW) kindergarten to Grade 6 children in selected schools. | It serves so as not to limit the feeding to breakfast time. |
| 2014–2015       | The program was officially renamed SBFP and implemented in coordination with the DepEd and the DSWD (DepEd-DSWD) funded\(^1\). | SW kindergarten to Grade 6 children in identified schools. If funds are still available, wasted (W) shall be included. (562,262/15,114,208) | |
| 2015–2016       | Scale up for the beneficiaries. | All SW kindergarten to Grade 6 students and W kindergarten to Grade 3 students. (1,160,155/14,894,466) | |
| 2016–2017       | Increase in the budget. Scale up for the beneficiaries. | SW and W kindergarten to Grade 6 students. (1,918,464 beneficiaries)\(^4\) | The budget was increased from 16 to 18 PHP/child/day. |
| 2017–2022       | The span of the SBFP Guideline was changed. | All SW and W kindergarten to Grade 6 students of the current year. (1,823,443 beneficiaries in SY 2017–2018)\(^8\) | The span was changed from 1 year to 5 years. |

† Short-term hunger: A condition experienced by children who do not eat breakfast and with a long walking distance to reach school.
‡ DSWD funded: Department of Social Welfare and Development funded. the unused portion of SBFP funds for SY 2014–2015.
§ The number of total school children is unclear.
The guidelines of the SBFP also contain previous yearly assessments as well as planning for the current year. Meanwhile, Tabunda et al. reported an evaluation of the SBFP during the SY 2013-2014. In this study, we integrated these documents and some data obtained in the field comprehensively to clarify the current aims and situations of the SBFP in the Philippines, including implementation status and coverage. Next, we evaluated the program from the viewpoint of improving nutritional and health conditions in the children.

II. Methods

One of the authors, who works in the Philippines as a Japan overseas cooperation volunteer, obtained the report and the guidelines of the SBFP through the SBFP website in the Philippines. She gained nutritional data in the Philippines. In addition, she contacted a member of the DepEd and received some more useful information, such as the actual menu plan for school lunches. She also visited some elementary schools to observe the SBFP and interviewed teachers and school nurses to grasp the real situations.

III. Results

1. Coverage and budget of the SBFP

1) Aim of the SBFP

The SBFP aims to improve school attendance and the nutritional status of the target beneficiaries through food provision, and further, to conduct group hand washing and tooth brushing activities, to prompt positive health-promoting values and behaviors. Additionally, it aims to provide nutritional and health information, and to encourage backyard vegetable gardening in the community for support of the feeding program.

2) Implementation status and coverage of the SBFP

The DepEd Commission proposes the budget allocation based on the national target beneficiaries per region prior to the year of implementation, and the Standard Developing Organizations are responsible for determining the budget allocation and actual beneficiaries per school, based on the actual beneficiaries selected from the baseline school nutritional status report of the current SY.

The budget allocated for feeding is 16.0 PHP (Philippine Peso), while operational expenses are 2.0 PHP per beneficiary, multiplied by the number of feeding days, respectively. The food is provided for 120 days to achieve a significant impact on the nutritional status of the children.

The target beneficiaries in the SBFP are only particular children, that is, all either W or severely wasted (SW) kindergarten to Grade 6 children in public educational institutions, who are evaluated by a nutritional assessment during June and July before the start of the program each year. Though the beneficiaries have gradually increased, the rates had not reached over 10% in the SY 2014-2015 and 2015-2016 (Table 3). Other children have to go back home, go to eateries, or bring lunchboxes for lunch.

3) Procedures employed by the SBFP

Before starting the program, school heads and other school personnel attended an orientation program. Parents of the beneficiaries were included as participants of the orientation and committed their services for the implementation of the program. The financial processes employed, including procurement and auditing procedures, were thoroughly discussed and monitored by the core Technical Working Group at all levels.

2. Quality of the SBFP

1) Nutritional management

No nutritionists or dieticians are allocated in the schools. Instead, a person responsible for the SBFP is assigned at each school and a nurse is arranged in each area. They, along with care group members, have the responsibility to decide when and what meals are provided. The care group members are also involved in cooking and teachers provide support if the number of staff is not sufficient. The recommended nutrient intake for school children has already been set at the state level (Table 4). However, it seems that no recommended nutritional intake values have been established in the SBFP. Table 5 shows a sample menu plan received in the field. Each menu is composed of a few categories, and the menu and cooking methods are dependent on each school.

2) Sanitation management

It was found that the space for cooking is located outdoors at some schools, and meals are cooked over wood fires. Accordingly, the sanitation conditions seem to be worse than those seen in developed countries.
### Table 4  Recommended nutrient intake for children in the Philippines\(^{14}\)

| Nutrient                  | 3–5 years old | 6–9 years old | 10–12 years old |
|---------------------------|---------------|---------------|-----------------|
|                           | Male          | Female        | Male            | Female         | Male           | Female         |
| Weight (kg)               | 17.5          | 17.0          | 23.0            | 22.5           | 36.0           | 33.0           |
| Energy (kcal)             | 1,350         | 1,260         | 1,600           | 1,470          | 2,060          | 1,980          |
| Protein (g)               | 22.0          | 21.0          | 30.0            | 30.0           | 43.0           | 46.0           |
| (Fat) α-Linolenic Acid (%E) | 0.5           | 0.5           | 0.5             | 0.5            | 0.5            | 0.5            |
| (Fat) Linolenic Acid (%E) | 2.0           | 2.0           | 2.0             | 2.0            | 2.0            | 2.0            |
| Dietary Fiber (g)         | 8–10          | 8–10          | 11–14           | 11–14          | 15–17          | 15–17          |
| Vitamin A (μgRAE)         | 400           | 400           | 400             | 400            | 500            | 500            |
| Vitamin D (μg)            | 5             | 5             | 5               | 5              | 5              | 5              |
| Vitamin E (mgα-TE)        | 6             | 6             | 6               | 6              | 7              | 9              |
| Vitamin K (μg)            | 18            | 17            | 23              | 23             | 33             | 36             |
| Thiamin (mg)              | 0.5           | 0.5           | 0.7             | 0.7            | 0.9            | 0.9            |
| Riboflavin (mg)           | 0.6           | 0.5           | 0.7             | 0.7            | 1.0            | 0.9            |
| Niacin (mg)               | 7             | 7             | 9               | 9              | 11             | 12             |
| Folate (mg)               | 0.6           | 0.7           | 0.7             | 0.8            | 1.0            | 1.1            |
| Vitamin B\(_6\) (mg)     | 1.1           | 1.2           | 1.3             | 1.5            | 1.8            | 2.1            |
| Vitamin B\(_12\) (μg)    | 200           | 200           | 200             | 200            | 300            | 300            |
| Calcium (mg)              | 45            | 45            | 45              | 45             | 45             | 45             |
| Vitamin C (mg)            | 9             | 9             | 10              | 9              | 12             | 12             |
| Iron (mg)                 | 5.0           | 4.8           | 5.1             | 5.1            | 6.6            | 6.1            |
| Zinc (mg)                 | 20            | 20            | 20              | 19             | 21             | 23             |
| Selenium (μg)             | 90            | 90            | 120             | 120            | 120            | 120            |
| Iodine (μg)               | 750           | 750           | 700             | 700            | 1,000          | 1,000          |
| Magnesium (mg)            | 70            | 70            | 90              | 90             | 150            | 160            |
| Phosphorus (mg)           | 500           | 500           | 500             | 500            | 1,250          | 1,250          |
| Fluoride (mg)             | 0.9           | 0.9           | 1.2             | 1.1            | 1.7            | 1.8            |

### Table 5  A sample menu in the SBFP

|               | Monday                  | Tuesday                  | Wednesday                | Thursday                 | Friday                   |
|---------------|-------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| 1\(^{st}\) Week | Rice Vegetable Guisado (Fried vegetables) | Rice Ginisang Mongo (Simmered beans) | Rice Meatballs w/Malunggay | Rice Dills w/Malunggay (Dried fish with malunggay) | Rice Shrimp Fillet |
| 2\(^{nd}\) Week | Rice Misua w/Kangkong (Noodle soup with Green leafy vegetables) | Rice Pancit Guisado (Fried noodle) | Rice Chicken Fillet | Rice Humba (Pork stew) | Rice Guinatang Kalabasa (Squash with coconuts soup) |
| 3\(^{rd}\) Week | Rice Fried Beans | Rice Pakbet (Stir-fried vegetables with salted shrimp) | Rice Law-yoy (Vegetable soup) | Rice Menudo (Meat and vegetable stew) | Rice Chicken Soup |
| 4\(^{th}\) Week | Rice Fish Fillet | Rice Chicken Tinola (Chicken soup) | Rice Pork Steak | Rice Shrimp Soup | Rice Chicken Calderita (Chicken and vegetable stew) |
| 5\(^{th}\) Week | Rice Guisadong Sitaw (Stir-fried green beans) | Rice Vegetable Guisado (Fried vegetables) | Rice Mongo w/Dried fish (Beans with dried fish) | Rice Meatballs w/Malunggay | Rice Humba (Pork stew) |
3) Health and nutrition education

In the curriculum, health and nutrition education is located in a specific subject called MAPEH (Music, Arts, Physical Education, and Health) and is provided to prompt positive health-promoting values and behaviors in the children. Actually, a manual for teachers is published and utilized that includes this content, such as handwashing and tooth brushing. In the DepEd analysis, the SBFP appeared to work best when complemented with other health programs, such as deworming and micronutrient supplementation. School heads emphasize the importance of these programs and children are ready to learn and create health-promoting habits and behaviors. However, focus on nutrition education, and sufficient textbooks and materials are not prepared for the teachers and students.

Another aim of the SBFP is to encourage backyard vegetable gardening in the community. For example, malunggay, which looks like a leaf bud and is a very popular vegetable in the Philippines, is planted in school yards and is used in school meals.

3. Evaluation of the SBFP

In 2015, the Philippines Institute of Developmental Studies (PIDS) announced its evaluation of the SBFP for the last six years. Annual program evaluation indicates that 73% of the undernourished beneficiaries were converted to normal nutrition status at the end of 120 feeding days. School attendance also improved and the rate reached 98%. Additionally, positive health habits such as washing of hands before and after eating, tooth brushing, and general good grooming behaviors were observed in the children. Moreover, the PIDS indicated in its evaluation that the SBFP is a “well managed program”.

On the other hand, Tabunda et al. released an assessment of the SBFP. Table 6 shows a part of that assessment.

| Verified pre-feeding nutrition status | Verified post-feeding nutrition status | Total |
|--------------------------------------|----------------------------------------|-------|
| Severely wasted†                    | Wasted (20.6)                          | 178 (62.0) | 1 (0.4) | 287 (100) |
| Wasted                               | 24 (24.7)                              | 68 (70.1)  | 0 (0.0)  | 97 (100)  |
| Normal                               | 5 (6.3)                                | 71 (89.9)  | 0 (0.0)  | 79 (100)  |
| Overweight                           | 0 (0.0)                                | 0 (0.0)    | 0 (0.0)  | 1 (100)   |
| Total                                | 57 (12.3)                              | 89 (19.2)  | 317 (68.3) | 1 (0.2)  | 464 (100) |

* A Thin child whose BMI-for-age is below the -3 SD cut-off
* Number (%)

Regarding post-feeding status, 62% of the verified SW beneficiary children attained at least normal nutrition status at the end of the feeding program, although some of the SW and W children remained at almost the same status.

IV. Discussion

Previous evidence related to SFPs in developing countries has shown that many good effects are associated with the provision of meals at school. Especially, SFPs have increased school enrollment, cognition, and educational achievement. Based on these results, in the Philippines, the DepEd has been promoting the SBFP for two decades. Notably, this program seems to produce good yearly achievements in terms of some original aims such as improving school presence and encouraging backyard vegetable gardening. However, the present report found some issues with the SBFP.

First, the status of undernourished children still remains unchanged, though many beneficiaries reverted to normal physical conditions at the end of the program. This seems to occur because the SBFP is conducted for a limited duration. Food is provided for only 120 days at school in a year, and the improved condition may not persist during the summer break after this program. In addition, the SBFP has been provided for a limited range of beneficiaries and does not seem to improve the nutrition status of all children.

Next, it was found that no nutritionists or dieticians are on duty at the schools. Furthermore, recommended nutritional intakes in the SBFP do not seem to be established yet. In the previous data (Table 2), not only the number of undernourished children but also those of overweight or
obese status have continued to increase in the last decade, that is, double burdens of nutritional problems exist in the Philippines\(^6\). To resolve these nutritional conditions in various types of children, assignment of nutritionists or dieticians is essential. Besides, establishment of recommended nutritional intakes in the SBFP will be valuable for them. It is obvious that an abundant budget may enhance the quality of the SBFP. Actually, a poor budget is connected to a lack of nutritious food, cooking tools, and indoor cooking spaces along with the shortage of human resources. Management of the SBFP depends on the efforts of the staff at each school. Considering the effects of the SBFP\(^7,8\), expansion of the budget is a worthwhile investment.

Furthermore, review of the curriculum in the educational fields is necessary. According to the Japanese volunteer, the curriculum has changed recently and the subject of nutrition education has been scaled up in MAPEH, but exposure to this subject is infrequent because of a shortage of teaching aids. Thus, if it is advanced, an increased interest in nutrition for children can be expected. Nutrition education for parents is also necessary, as well as for their children. In the guidelines, the care group members are comprised of parents and volunteers. However, some parents are not cooperative and teachers are compelled to help with cooking concurrently with teaching classes at some schools. It is important to increase the consciousness of parents, and having parents attend school cooking sessions may be a good opportunity for that.

Meanwhile, there is the Barangay Nutrition Committee (BNC) for the barangay, the smallest government unit, and not only teachers in elementary schools, but also nutritional volunteers and specialists in agriculture belong to this organization. They hold meetings periodically. Further utilization of the BNC may be a vital way to activate the SBFP. Now, the SBFP in the Philippines is in a period of development and the school lunch and education system employed in Japan may be a useful example for progress in the SBFP in the Philippines.

The present study had some limitations. First, there were data limitations and the number of documents was small. Additionally, the Philippines are composed of many islands, but some information in this report was obtained from limited areas. A further comprehensive survey is necessary to investigate the effect of the SBFP.

V. Conclusion

This report suggested that the SBFP seems to produce good yearly achievements in terms of some original aims such as improving school presence and encouraging backyard vegetable gardening. However, nutritional problems of the students and the shortage of human resources remain. To promote positive health conditions in the children, improvement in these issues in the SBFP and further education are required.

Acknowledgments

We would like to express our heartfelt thanks to all of the staff at the Department of Education in the Republic of the Philippines for their valuable assistance.

Conflict of Interest

The authors report no conflicts of interest. The authors alone are responsible for the content and writing of this article.

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