

## COMPLETION REPORT

School Lunch Program "Kyushoku": What Malaysia can learn from Japan?

Dr. Rohana Abdul Jalil

Senior Lecturer

School of Medical Sciences

Universiti Sains Malaysia (USM)

Malaysia

The aim of the study was to evaluate the prevalence of malnutrition in 7 years old primary schoolchildren and to identify the associated factors contributing to malnutrition. The School Supplementary Feeding Program (SSFP) was evaluated at the baseline (before receiving SSFP) and after one year receiving SSFP. This study consisted of three parts. Part One was a cross sectional study with 1436 of children from 16 primary schools in Kota Bharu, Kelantan, Malaysia. The second part was an evaluation of the program SSFP being implemented through anthropometric changes and Part 3 was a qualitative study on teacher's perception of the implementation of SSFP in their respective schools. In part 3 also, teachers were interviewed about their opinion of 'Kyushoku' approach which has been implemented in Japan and what do they think if 'Kyushoku' could be implemented in Malaysia. The prevalence of malnutrition among newly enrolled (7 years) of primary children in Kota Bharu, Kelantan, Malaysia was 12.7% underweight, 10.7% stunting, 11.7% wasting and 13.5% were with low mid upper arm circumference (MUAC). Mid upper arm circumference is an indicator for protein storage. The associated factors for underweight were household size of 6 to 10 individuals, had history of food assistance recipients such as multivitamin supplementation ( $p < 0.001$ ), milk powder ( $p = 0.004$ ) and food basket ( $p = 0.001$ ). the associated factors for stunting were monthly family income of RM500-RM1000 per household, household size of 6-10 and above individuals ( $p = 0.001$ ) in a household and low birth weight ( $p = 0.003$ ). Associated factors for wasting were ethnicity, where Malay ethnicity was a protective factor ( $p = 0.0028$ ) and had history of receiving food assistance ( $p = 0.004$ ). However, previously receiving food assistance previously was the only one factor associated with low mid upper arm circumference. After controlling several variables, the odds of being in a higher body mass index category (BMI for age) for a subject whose family income level was less than RM500 and between RM500 to RM1000 were 0.410 and 0.539, respectively. Children who were not breastfed had 1.862 greater odds of being in a higher BMI category than those who were breastfed. While children who received nutritional support (food assistance) have 0.421 smaller odds of being in a higher BMI category than those who did not receive nutritional support. After baseline means and family income were controlled, the means for weight-for-age of SSFP recipients were significantly higher than the means of weight-for-age on non-SSFP recipients ( $p = 0.011$ ). On the other hand the means of BMI-for-age and MUAC z-score-for height of SSFP recipients were higher than the means of BMI-for-age and MUAC z-score-for-height of non-SSFP recipients, even though the mean difference was not significant ( $p$  value = 0.063 and 0.444, respectively. According to qualitative study, when teachers were asked about the implementation of 'Kyushoku' model as what have been carried out in Japan, most teachers agree that Malaysia should follow 'Kyushoku' model. With this approach teachers and children will be sharing meal

together, and healthy menu could be prepared efficiently. Teachers also agree all schools in Malaysia should have their own kitchen for menu preparation and dietitian who is incharge of the school lunch program. In conclusion, prevalence of malnutrition such as underweight, stunting and wasting in Kota Bharu, Kealntan, Malaysia is still an existing issue. There was a significant improvement in weight-for-age in SSFP recipient group than non-SSFP recipient group after receiving 11 months of SSFP. However, findings from school teachers who are managing this program at school mentioned that School Supplementary Feeding Program with 'Kyushoku' model may improve and increase the quality of the food assistance program in Malaysia, hence will improve the malnutrition cases among schoolchildren.

Publication of the Results of Research Project:

Verbal Presentation (Date, Venue, Name of Conference, Title of Presentation, Presenter, etc.)

Prevalence of malnutrition among new enrolled school children and its associated factors'. Rohana A.J., Mas Sherzkawee, M.Y. & Yamamoto, S. , Nutrition Society Malaysia Conference, June, 3-4, 2014, Renaissance Hotel

Thesis (Name of Journal and its Date, Title and Author of Thesis, etc.)

1. Doctoral Theses (Public Health) on 'Prevalence of Malnutrition in Children and Evaluation of School Supplementary Feeding Program in Kota Bharu, Kelantan'. Author: Dr Mas Ahmad Sherzkawee bin Mohd Yusof, 2014

2. Prevalence of malnutrition among new enrolled school children and its associated factors in Kota Bharu, Kelantan. Manuscript to be submitted to Nutrition Research Practice

Evaluation of School Supplementary Feeding Program among 7 years old school children in Kota Bharu, Kelantan

Book (Publisher and Date of the Book, Title and Author of the Book, etc.)