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A randomized cross-over trial on the effectiveness of using the World Health Organization's formula-100 as a school-based food supplement for weight gain of first grade students at Barangay Lingga elementary school

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Background: Seventh National Nutrition Survey showed an increase in underweight prevalence to 25.6%. School feeding programs have also become popular means of increasing student's concentration and learning capacity because of the reduction of short term hunger. The WHO Formula 100 (F-100) is a homemade high calorie milk formula (100 kcal or 420 kJ/100 mL) that was intended for the rehabilitation phase of treatment of children with severe acute malnutrition. The use of F-100 in a school-setting as part of a feeding program has no supporting research. The present paper intends to close the gaps in the knowledge on the uses of F-100.

Objectives: To evaluate the effectiveness of F-100 as a school-based food supplement for first grade students.

Design & Methodology: The present study utilized a randomized, cross-over, experimental design of 77-first grade-students from Baranggay Lingga Elementary School at Calamba City. Participants were divided into two groups and weight was taken biweekly. The weight was then analyzed with repeated measures ANOVA to look for significance of weight changes from baseline to week-6. Parents were also tasked with completion of a 24-hour food recall sheet in order to assess current nutritional status of the participants. Participants were also tasked to rate the palatability of F-100 in comparison to commercially available milk. Finally, researchers compared the cost of mixing 100 ml of F-100 with the cost of commercially available formula milk.

Results: Overall weight gain from F-100 group is significant compared to the control group. The introduction of feeding program makes the participants skip their morning snacks. There is no difference in palatability between the F-100 and regular milk. Lastly, F-100 only cost PHP 4.09 / 100 ml compared to equally calorie-dense commercially available formula that priced at PHP 23.28 and PHP 26.24 every 100 ml.

Conclusion: WHO F-100 is a cost-effective, easy-to-make, and nutritious alternative for school feeding program.

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High prevalence of vitamin D deficiency among preterm infants at birth in Wuxi, China

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Maintenance of sufficient vitamin D in preterm infants is of great importance. However, data on vitamin D status among preterm neonates in China is still limited. The aim of this study was to evaluate the vitamin D level in preterm neonates and assess its association with maternal vitamin D level during pregnancy. A cross-sectional study was performed in 179 preterm neonates admitted to the newborn intensive care unit (NICU) at the Wuxi Maternity and Child Health Hospital from May 2013 to May 2014. Radial artery blood specimens were collected within 24h after birth. Serum 25-Hydroxyvitamin D (25(OH) D) levels were measured. Overall, vitamin D deficiency was prevalent in 84.4% of preterm neonates and 52.0% had a 25(OH) D level <30nmol/L. Only 1.6% had an optimal vitamin D status (>75 nmol/L). There was no significant difference in preterm neonatal 25 (OH) D levels between groups of boys and girls, singleton and twin gestation, low and normal birth weight. However, vitamin D levels of preterm newborns delivered in different seasons varied greatly. The vitamin D status of preterm neonates strongly correlated with maternal vitamin D (r=0.416, P=0.016), and this correlation persisted after adjusting for birth season and gestational age at maternal blood sampling (r=0.527, P=0.002). This is the first study to evaluate the vitamin D status among preterm neonates in China, and a high prevalence of vitamin D deficiency was found which requires urgent attentions. It is also implied that adequate maternal vitamin D supplementation during pregnancy might benefit the vitamin D status of neonates.

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