

## Training on Portioning Standards and Food Management in Daycare Centers in Bandung City

Ayu Mutiara Santanu<sup>1</sup>, Asti Dewi Rahayu Fitrianingsih<sup>2\*</sup>, Delita Septia Rosdiana<sup>3</sup>

<sup>1,2,3</sup>) Universitas Pendidikan Indonesia, Indonesia

\* Correspondence e-mail; rahayufitria@upi.edu

### Article history

Submitted: 2014/12/02; Revised: 2025/02/17; Accepted: 2025/02/25

### Abstract

Daycare is one of the places that has an important role in supporting children's growth and development, including ensuring children's nutritional intake is appropriate for their age. However, the current quality of daycare centers has not reached the appropriate level. Thus, assisting and increasing caregiver knowledge and skills on organizing a good meal is necessary. This community service program aims to improve the ability of caregivers to calculate nutritional intake according to children's needs and to properly manage the organization of meals in daycare. The method used in this program is a quasi-experiment, which provides training and assistance in preparing lunch menus and morning/afternoon snacks based on local foods. The results of the service program showed that 78.6% of caregivers stated that they were satisfied with the help provided by lecturers and female students during the daycare food menu cooking training, 85.7% of caregivers stated that the food menu made was easy to apply in their workplaces, and 92.9% of caregivers stated that the training provided was by their needs and wanted similar training again. This program can be an effective alternative to increase caregivers' knowledge in Daycare in preparing menus according to the nutritional needs of children.

### Keywords

Caregiver; Children; Daycare; Meal Organization; Nutritional Needs



© 2025 by the authors. This is an open-access publication under the terms and conditions of the Creative Commons Attribution 4.0 International (CC BY SA) license, <https://creativecommons.org/licenses/by-sa/4.0/>.

## **1. INTRODUCTION**

Malnutrition, caused by an imbalance of nutrients in the body, can lead to various health issues such as stunting, wasting, and underweight (Ersado, 2022; Siddiqa et al., 2023). In Indonesia, early childhood malnutrition remains a significant issue, affecting physical and cognitive development. Proper nutrition in early life is essential for growth, learning, and immune function, while inadequate nutrition can hinder development (Regina & Nieto, 2024). According to the 2018 Health Survey, 3.9% of children under five were malnourished, and 13.8% were undernourished (Ministry of Health of the Republic of Indonesia, 2018). In Bandung City, stunting is a major concern, with a rate of 16.3% in 2023, and the local government aims to reduce this to 14% by 2024 (Essa et al., 2021). Proper nutrition is crucial for addressing these issues and ensuring healthy child development.

Addressing these issues is crucial for ensuring healthy child development. The role of parents in a child's growth and development is very important, but for working parents, accomplishing this cannot be easy (Nizam et al., 2022). One of the efforts that busy parents can make is choosing a daycare that offers good quality by ensuring the daycare provides healthy and balanced food tailored to the child's needs and has a standardized security and hygiene management system (Bhamani, 2024). Daycare centers play a crucial role in supporting a child's development, including ensuring that the child receives age-appropriate nutrition (Behbehani et al., 2024). Providing balanced and nutritious meals at daycare centers should be a priority to ensure children receive the necessary nutrients to support their optimal growth and development (Park et al., 2023). Knowledge and skills regarding children's nutritional needs according to age and addressing eating problems such as picky eating are essential in daily meal provision (Regina & Nieto, 2024).

However, despite daycare centers' important role in supporting children's growth and development, many daycare caregivers lack sufficient knowledge and skills to manage nutritious meals for children. A study conducted by a community service team in Bandung City found that daycare caregivers had never received training on food portion standards or the system for organizing balanced meals to children's nutritional needs. This lack of knowledge can contribute to malnutrition problems, including stunting, wasting, and underweight in children attending the daycare.

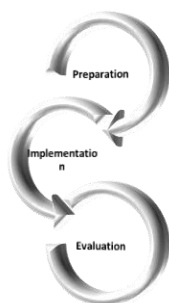
Caregivers play a very important role in managing food and nutrition intake for children at daycare. Without adequate training in creating nutritious menus appropriate for a child's age, caregivers may be unable to ensure that children receive

the necessary nutrition for their growth. This is crucial, considering the long-term impact of early childhood malnutrition, which can permanently impair development and increase the risk of diseases later in life (Regina & Nieto, 2024).

According to Behbehani et al. (2024) Daycare caregivers must have sufficient knowledge of children's nutritional needs and how to address eating problems, such as picky or dislike of vegetables. Knowledge of balanced meal menus and understanding how to manage food properly are essential for caregivers to provide meals tailored to each child's needs. Without proper training, caregivers may be unable to provide meals supporting the child's optimal growth and development. Nutritional needs can be met by selecting quality food ingredients, such as those derived from local food sources (Eh et al., 2020). As a country with diverse local food ingredients, utilizing local food resources can lead to nutritious and innovative meal options. Various local food ingredients, such as cassava, spinach, and seafood, are rich in nutrients. Local cuisine can be easily found in every region. By utilizing nutritious local food ingredients, innovative meal menus can help prevent the risk of diseases in children (Harmayani et al., 2019). Therefore, caregivers must also be equipped with skills in managing local foods to overcome challenges in food provision, such as the limited availability of nutritious food ingredients or children's picky eating behaviors. Without these skills, caregivers may struggle to provide food that meets children's nutritional needs. As explained by Park et al. (2023) The role of caregivers is crucial in ensuring that children at daycare receive proper nutrition, as children at this age are particularly vulnerable to malnutrition, which can affect their long-term health.

## 2. METHODS

The implementation activities of the community service plan include three stages: preparation, implementation, and evaluation. The following is a description of each stage:



**Figure 1.** Flow chart of community service activities

The general steps of the community service activity flow chart are explained as follows:

## 2.1 Preparation

The preparation stage of the community service program consists of activities:

- a. The Community Service Team of the Nutrition Research Project of the University of Education, Indonesia, identified the sample of PKM participants, seven daycare centers in the Bandung city area, each represented by two caregivers.
- b. Prepare menus using local food ingredients
- c. Here is the revised paragraph with your sentence added:
- d. Conducting menu trials and compiling a balanced nutritious cooking module, with menu preparation done with the help of NutriSurvey software, is essential for identifying the most appropriate meals for daycare centers. Additionally, identifying materials and tools that can be used in food processing and serving food ingredients in daycare centers in the Bandung City Region ensures that the meals meet both nutritional standards and practical needs.
- e. Send invitations to all heads of daycare centers in the Bandung City Region to attend the training activities on the organization and preparation of meals.
- f. Invite all caregivers appointed by the head of daycare in Bandung City as representatives of their workplace to the training on menu development and meal organization in daycare.

## 2.2 Implementation

The implementation stage is providing material in the form of training in the organization and preparation of meal menus by utilizing local raw materials to prevent malnutrition in children in daycare in Bandung City. This phase has already been done once. The implementation phase includes the following activities:

**Table 1.** Training Methods for Food Distribution Standards and Food Organization System in Daycare in Bandung City

Method	Stage of activity
Teaching method	The material on the background of the problem and the objectives of implementing the community service activities was orally delivered by a team of lecturers from the Nutrition Studies Program UPI.
Educational methods on children's nutritional needs and	Nutritional Studies Program instructors provide caregivers with information on techniques for organizing food in daycare, including menu planning,

food organization in Daycare	food needs planning, budget planning, purchasing food ingredients, receiving and storing, cooking food ingredients, distributing, and recording.
Lunch and morning/afternoon snack training	Lunch and morning/afternoon snack training: Each team was given a menu and ingredients, i.e., a luncheon menu and snacks, tailored to the nutritional needs of the children in the orphanage according to their age. Each cooking team consists of two caregivers, one student as an assistant, and three instructors. Activities are carried out in the Culinary Laboratory of the Nutrition Science Study Program.
Questions and Answers	After the cooking process, each team will assess the other team's cooking. At the same time, each participant can ask questions to discuss together.
Questionnaire Completion	Participants were asked to complete a satisfaction questionnaire to determine the event's success. The data were then processed using descriptive statistical tests with Microsoft Excel.

---

### **2.3 Evaluation**

From community service activities related to training in organizing and preparing meal menus by utilizing local raw materials to prevent malnutrition in children in daycare in Bandung City, several evaluations must be carried out, including time and place limitations so that training can only be carried out in 7 Daycare with a limited menu, namely only one luncheon and snack menu for each team.

## **3. FINDINGS AND DISCUSSION**

Training on food organization in Daycare was conducted to develop caregiver skills in serving various nutritionally balanced meals; this was carried out on August 7, 2024, attended by 14 caregivers representing each Daycare in Bandung City.

### **3.1 Provide Education on Nutritional Needs for Children in Daycare**

The speakers at this training event are all service implementers. The material provided relates to the nutritional needs of children and techniques for organizing meals in Daycare. The methods used in training activities are lectures and demonstrations. Lectures are conducted to educate caregivers about meal organization

activities in Daycare verbally.



**Figure 2.** The process of educating caregivers about children's nutritional needs

In educational activities, caregivers are given information on calculating Daycare children's nutritional needs and adequacy. Energy needs in children as they get older increase related to physical activity. In addition, balanced nutritional food intake in children can reduce the risk of stunting (Pinto et al., 2024). The intake of protein sources for children plays an important role in helping the growth and development process to support healthy bones and teeth and increase immunity (Sitorus, 2024).

The 2019 Nutrient Intake Guidelines (NACs) present the average daily nutrient intake for each age group that is ideal for meeting appropriate nutritional needs. The table above shows the macronutrient requirements for children aged 0-6 years based on the 2019 RDA (Permenkes RI, 2019).

a. Calculation of Nutrient Intake needs of Daycare Children 1-3 years old for lunch and snacks

Morning snack 10% of the requirements

- Energy =  $1350 \text{ kcal} \times 10\% = 135 \text{ kcal}$
- Protein =  $20 \text{ grams} \times 10\% = 2 \text{ grams}$
- Carbohydrate =  $215 \text{ grams} \times 10\% = 21,5 \text{ grams}$
- Fat =  $45 \text{ grams} \times 10\% = 4,5 \text{ grams}$

Lunch 30% of the requirements

- Energy =  $1.350 \text{ kcal} \times 30\% = 405 \text{ kcal}$
- Protein =  $20 \text{ grams} \times 30\% = 6 \text{ grams}$
- Carbohydrate =  $215 \text{ grams} \times 30\% = 64,5 \text{ grams}$
- Fat =  $45 \text{ grams} \times 30\% = 13,5 \text{ grams}$

b. Calculation of Nutrition Intake needs of Daycare Children aged 4-6 years for lunch

and snack

Morning snack 10% of the requirements

- Energy = 1400 kcal x 10% = 140 kcal
- Protein = 25 grams x 10% = 2,5 grams
- Carbohydrate = 220 grams x 10% = 22 grams
- Fat = 50 grams x 10% = 5 grams

Lunch 30% of the requirements

- Energy = 1.400 kcal x 30% = 420 kcal
- Protein = 25 grams x 30% = 7,5 grams
- Carbohydrate = 220 grams x 30% = 66 grams
- Fat = 50 grams x 30% = 15 grams

Children must eat a balanced diet to meet daily nutritional recommendations. Children's nutritional intake is categorized as deficient if the child only consumes <80% of the needs of the RDA and is considered sufficient if the child consumes 80-110% of the needs of the RDA and excessive if the child consumes >110%. In addition, it is also necessary to pay attention to the time of the meal given because it affects the growth of a child's development (FAO, 2019).

Daycare centers that provide child care while parents are away must pay attention to proper feeding times (Hanafi, 2016). What is more, the type of food provided needs to be adjusted to the child's age and preferences. The consumption of nutritious food for children is adjusted according to the needs of each age group, with an intake of about 25% protein, 20% fat, and 55% carbohydrates (Hudson et al., 2021). In addition, children aged 0-2 years who are still consuming breast milk or formula milk need to be scheduled so that it does not interfere with the main mealtime (Meek & Noble, 2022).

After providing education on how to calculate nutritional needs for Daycare children, caregiver groups are also given about food organization in Daycare, which includes menu planning, planning food needs, budget planning, procurement of food ingredients, receiving and storage, cooking food ingredients, distribution, and recording (Chriqui et al., 2018).

According to (2022), Food organization is a series of activities ranging from menu planning to food distribution to consumers to achieve optimal health by providing an appropriate diet. Including recording, reporting, and evaluation activities. Organizing food is to provide high-quality, reasonably priced, safe, and acceptable food to consumers based on nutritional needs to achieve optimal nutritional status (Oldroyd

et al., 2022). The type of food organization carried out in daycare centers is institutional food organization (institutional food service), a form of food organization in which the places for cooking and serving food are concentrated in one place. The food organization is non-commercial in not seeking to make a profit (An et al., 2019).

### ***3.2 Training on Making Lunch and Morning/Afternoon Snack Menus for Daycare Children***

After being given training by resource persons related to balanced nutritional needs for children and the organization of meals in Daycare, the activity continued by practicing the results of the training material provided. Practice is done in groups with different menus. One group consists of 2 participants. Each group will work together to develop a lunch menu and a breakfast/afternoon snack menu suitable for all age groups 1-3 years and ages 4-6 years.



**Figure 3.** Process training for preparing lunch and morning/afternoon snack menus

Research conducted by Tani et al., (2021) Showed that when caregivers had low levels of cooking skills, children were 2.81 times more likely to have low vegetable intake, unhealthy eating behaviors, and be at risk of malnutrition. Hence, training in choosing ingredients, cooking techniques, and meal planning in daycare is very important.

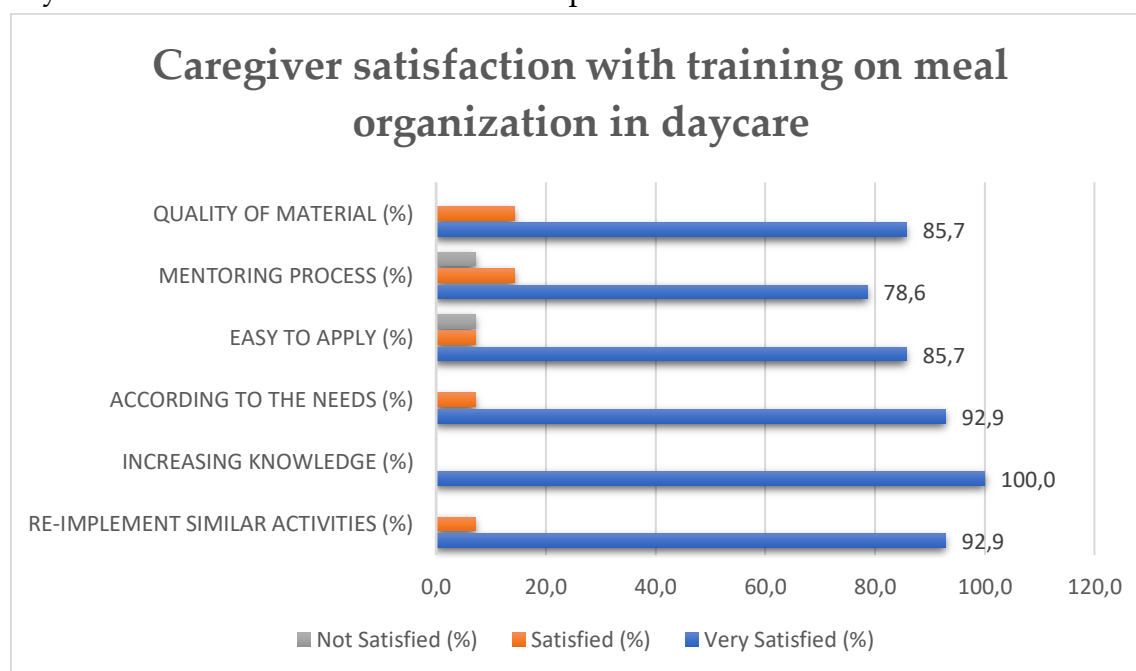
The training for preparing lunch and morning/afternoon snack menus for children is an initiative that aims to provide practical education to the community, especially parents and caregivers, on the importance of cooking and serving nutritious food. This program is not only about providing recipes but also educating caregivers about healthy eating habits that can help overcome the problem of malnutrition in children. Through this practical approach, we hope the caregivers can adopt a healthier and more nutritious diet to help improve children's quality of life.

### ***3.3 Monitoring and Evaluation***

Based on the results of the training participants' satisfaction questionnaire, 100%



of caregivers stated that they could understand the food preparation training material provided by the resource person and the training was useful in supporting caregiver skills, so they were interested in doing their practice at their respective Daycare institutions because the menu met the requirements of balanced nutrition, was more efficient and the cooking process was easier. The results of caregivers' satisfaction with the daycare center's lunch and snack menu practices are as follows:



**Figure 4.** Caregiver satisfaction with training on meal organization in daycare

Based on the activity satisfaction questionnaire and the usefulness of the training, the average caregiver is very satisfied with this activity. As many as 85.7% of the participants were very satisfied with the materials provided by the resource persons for organizing meals in daycare centers. As many as 78.6% of caregivers stated that they were very satisfied with the assistance provided by lecturers and students during the daycare food menu cooking training, and 85.7% of caregivers stated that the food menu was easy to apply in their workplaces. As many as 92.9% of caregivers stated that the training met their needs and wanted similar retraining.

#### 4. CONCLUSION

The training conducted by the Community Service Team of Bandung City on the development of portion size standards and organizational systems for daycare centers was found to be effective in improving the knowledge and skills of caregivers in daycare centers in Bandung City. Nursing staff expressed great satisfaction with the training program as it was tailored to the needs of their institution and could be easily applied in their respective workplaces.

## REFERENCES

- An, C., Cluster, E., Controlled, R., Yoong, S. L., & Grady, A. (2019). *The Impact of a Childcare Food Service Intervention on Child Dietary Intake in The Impact of a Childcare Food Service Intervention on Child Dietary Intake in Care : An Exploratory Cluster Randomized Controlled Trial*. September. <https://doi.org/10.1177/0890117119837461>
- Bardosono, S. (2022). Nutrition in Indonesia toddlers and preschools : *World Nutrition Journal*, 5(S3), 3–4. <https://doi.org/10.25220/WNJ.V05.S3.0002>
- Behbehani, F., Alysse, J., Dombrowski, E., & Black, M. M. (2024). *Childcare center attendance and health, growth, and development among children aged 0 – 3 years in low- and middle-income countries : A systematic review*. 14, 1–16. <https://doi.org/10.7189/jogh.14.04028>
- Bhamani, S. (2024). *Selecting a Quality Day Care for Young Children : A Cross-Sectional Survey of Parents in Karachi Pakistan* *Selecting a Quality Day Care for Young Children : A Cross-Sectional Survey of Parents in Karachi Pakistan*. September. Diakses di <https://ojs.aiou.edu.pk/index.php/ecce/article/view/2276>
- Chriqui, J. F., Schermbeck, R. M., & Leider, J. (2018). *Food Purchasing and Preparation at Child Day Care Centers Participating in the Child and Adult Care Food Program in the United States, 2017*. 14(6). <https://doi.org/10.1089/chi.2018.0099>
- Eh, M., Schoonees, A., Sriram, U., Faure, M., Ra, S., Eh, M., Schoonees, A., Sriram, U., Faure, M., & Ra, S. (2020). *Caregiver involvement in interventions for improving children's dietary intake and physical activity behaviors (Review)*. <https://doi.org/10.1002/14651858.CD012547.pub2.www.cochranelibrary.com>
- Ersado, T. L. (2022). *We are IntechOpen, the world's leading publisher of Open Access books Built by scientists for scientists*. May. <https://doi.org/10.5772/intechopen.104458>
- Essa, W. Y., Nurfindarti, E., & Ruhjana, N. F. (2021). *Strategies for Handling Stunting in Bandung City*. 13, 15–28. <https://doi.org/10.21787/jbp.13.2021.15-28>
- FAO. (2019). *Nutrition guidelines and standards for school meals*. Food and Agriculture Organization of the United Nations Rome. Diakses di <https://openknowledge.fao.org/server/api/core/bitstreams/d3b90456-169c-4bca-a5a8-69c4fc3a4e9e/content>
- Govender, I., Rangiah, S., Kaswa, R., Nzaumvila, D., Makgatho, S., Africa, S., & Sisulu, W. (2021). *Malnutrition in children under the age of 5 years in a primary health care setting*. 1–6. <https://doi.org/10.4102/safp.v63i1.5337>
- Hanafi, Z. (2016). *The Childcare Center : How to Ensure Quality Childcare Practices The Childcare Center : How to Ensure Quality Childcare Practices*. October. <https://doi.org/10.5539/ass.v11n25p90>

- Harmayani, E., Anal, A. K., Wichienchot, S., Bhat, R., Gardjito, M., Santoso, U., Siripongvutikorn, S., Puripaatanavong, J., & Payyappallimana, U. (2019). *Healthy food traditions of Asia: exploratory case studies from Indonesia, Thailand*, 1–18. <https://doi.org/10.1186/s42779-019-0002-x>
- Hudson, J. L., Baum, J. I., & Diaz, E. C. (2021). *Dietary Protein Requirements in Children : Methods for Consideration*. <https://doi.org/10.3390/nu13051554>
- Little, M., Rosa, E., Heasley, C., Asif, A., Dodd, W., & Richter, A. (2022). *Promoting Healthy Food Access and Nutrition in Primary Care : A Systematic Scoping Review of Food Prescription Programs*. 36(3), 518–536. <https://doi.org/10.1177/08901171211056584>
- Meek, J. Y., & Noble, L. (2022). *Policy Statement : Breastfeeding and the Use of Human Milk*. 150(1), 1–15. <https://doi.org/10.1542/peds.2022-057988>
- Ministry of Health of the Republic of Indonesia. (2018). Hasil Riset Kesehatan Dasar Tahun 2018. *Kementrian Kesehatan RI*, 53(9), 1689–1699. Diakses di <https://repository.badankebijakan.kemkes.go.id/id/eprint/3514/1/Laporan%20Ris kesdas%202018%20Nasional.pdf>
- Nizam, M., Ahmad, N., Farah, N., Che, A., Atiqah, N., & Mohd, L. (2022). *The Importance of Parental Involvement in Early Childhood Education for Children Under 4-Year Old*. 1(1), 13–20. <https://doi.org/10.37698/jels.v1i1.104>
- Oldroyd, L., Pratt, C., & Lake, A. A. (2022). *The nutritional quality of food parcels provided by food banks and the effectiveness of food banks at reducing food insecurity in developed countries: a mixed-method systematic review*. October 2021, 1202–1229. <https://doi.org/10.1111/jhn.12994>
- Park, J., Baek, S., Hwang, G., Park, C., & Hwang, S. (2023). *Diet-Related Disparities and Childcare Food Environments for Vulnerable Children in South Korea : A Mixed-Methods Study*. 1–21. <https://doi.org/10.3390/nu15081940>
- Permenkes RI. (2019). *Peraturan Menteri Kesehatan Republik Indonesia Nomor 28 Tahun 2019 Tentang Angka Kecukupan Gizi Yang Dianjurkan Untuk Masyarakat Indonesia*. Kementerian Kesehatan Republik Indonesia. Diakses di [http://hukor.kemkes.go.id/uploads/produk\\_hukum/PMK\\_No\\_\\_28\\_Th\\_2019\\_ttg\\_Angka\\_Kecukupan\\_Gizi\\_Yang\\_Dianjurkan\\_Untuk\\_Masyarakat\\_Indonesia.pdf](http://hukor.kemkes.go.id/uploads/produk_hukum/PMK_No__28_Th_2019_ttg_Angka_Kecukupan_Gizi_Yang_Dianjurkan_Untuk_Masyarakat_Indonesia.pdf)
- Pinto, J., Ximenes, C., Jesus, A. De, & Jesus, R. De. (2024). *The Role of Nutrition in Children's Growth and Development at Early Age : The Role of Nutrition in Children's Growth and Development at Early Age : Systematic Review*. January. <https://doi.org/10.37648/ijrst.v13i04.004>
- Regina, M., & Nieto, P. (2024). *The impact of nutrition on people's cognitive development*.

8(4), 90–93. <https://doi.org/10.15406/ijfcm.2024.08.00358>

Siddiqa, M., Shah, G. H., Mayo-gamble, T. L., & Zubair, A. (2023). *Determinants of Child Stunting, Wasting, and Underweight: Evidence from 2017 to 2018 Pakistan Demographic and Health Survey*. 2023, 1–12. <https://doi.org/10.1155/2023/2845133>

Sitorus, N. (2024). “ Animal Protein and Growth Formula : Nutrition Foundations for Children 5 Years and Older .” *Journal of Indonesian Specialized Nutrition*, 02(03), 35–44. <https://doi.org/10.46799/jisn.v1i5.28>

Tani, Y., Isumi, A., & Doi, S. (2021). *Associations of Caregiver Cooking Skills with Child Dietary Behaviors and Weight Status: Results from the A-CHILD Study*. 1–11. <https://doi.org/10.3390/nu13124549>