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Author(s)	長堀, 智香子
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学 位 論 文

Prevalence of Malnutrition and Associated Factors among Young Children in the Eastern Region of the Republic of Cameroon

（カメルーン東部州に居住する年少の子どもの栄養不良と関連要因）

長堀　智香子

北海道大学大学院保健科学院

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Abstract

Background: Over 6 million children in the world under the age of five have died from malnutrition, and over 60 million children in the world under the age of five are malnourished. Malnourished children are much more likely to die as a result of common childhood diseases than those who are adequately nourished. Illness is frequently a consequence of malnutrition, and malnutrition is also commonly the result of illness. Therefore, improving malnutrition contributes to the reduction of child mortality. According to the 2012 WHO report, an appropriate complementary feeding is timely, adequate, safe, and properly administered. Research on malnutrition is often focused on adequacy, most often related to quantity and quality, but studies on timeliness, i.e. the age at complementary food initiation, are limited.

Objective: The present study was conducted to clarify the prevalence of child malnutrition and the association with age at complementary food initiation in children aged 0–5 years old in the Eastern Region of the Republic of Cameroon. Starting complementary foods at appropriate time does not require a cost to implement, unlike improving the quantity and quality of food in developing countries. Therefore, feasibility and sustainability can be expected.

Method: In chapters 2 and 3, mothers were interviewed using a structured

questionnaire, and the child's weight, length, height, head circumference, and mid-upper arm circumference were collected. The data were evaluated using the 2006 child growth standards proposed by the WHO and Z-scores. The Fisher's exact test, and Student's t-tests were conducted to determine the significance of variables associated with malnutrition (children with a Z-score below −2SD of any child growth standard). In chapter 4, descriptive statistics were calculated by categorizing the interview items into basic attributes, food, and living environment/vaccinations. Next, the differences in H/LAZ, WAZ, WH/LZ, MUACAZ and HCAZ values and age at initial complementary food administration [divided into two categories: 1) starting before 4 months old or after 8 months old or 2) starting between 5–7 months old] were analyzed using Student's t-test. In addition, the association of all nutritional status indicators and age at initial complementary food administration [divided into four categories: 1) starting before 4 months old, 2) 5–7 months old, 3) after 8 months old, and 4) those who did not start] were analyzed using analysis of variance. Next, multiple regression analysis was performed using the values of all nutritional status indicators as the dependent variable, the age at initial administration of complementary foods divided into two categories, and child ages and sexes as independent variables, in children aged 0–5, 0–2, and 2–5 years old. Next, another multiple regression analysis was performed using the values of

all nutritional status indicators as the dependent variable and the mother's education level, residence, and ethnic group as well as the occupation of her husband as independent variables for children aged 2–5 years old.

Results and Discussion: For children aged 0–2 years old (N = 100), the prevalence of various states of malnutrition were as follows: stunting (31.0%), underweight (14.0%), wasting (6.0%), MUACAZ-score < −2SD (16.0%), and HCAZ-score < −2SD (0.0%). Mother's age (p = 0.006), mother's education level (p = 0.018), child's age (p = 0.008), and residence (p = 0.021) were significantly associated with malnutrition.

For children aged 2–5 years old (N = 112), the prevalence of various states of malnutrition were as follows: stunting (58.9%), underweight (44.6%), wasting (16.1%), MUACAZ-score < −2SD (18.8%), and HCAZ-score < −2SD (11.6%). Mother's education level (p = 0.026), child's sex (p = 0.008) and age (p = 0.007), age at initial complementary food administration (starting age [p = 0.013] and 2 categorized [p = 0.021]: starting complementary foods from before 4 or after 8 months old, use of dairy products for complementary feeding (p = 0.036), and thickness of porridge (p = 0.034) were significantly associated with malnutrition.

For children aged 0–5 years old (N = 212), the prevalence of various states of malnutrition were as follows: stunting (45.8%), underweight (30.2%), wasting (11.3%), MUACAZ-

score < −2SD (17.5%), and HCAZ-score < −2SD (6.1%). We found that about half of the children studied exhibited stunting, which indicates chronic malnutrition. From multiple regression analysis, even after considering sex and age, there was a significant association between the age at complementary food initiation and H/LAZ, WAZ, WH/LZ, MUACAZ, and HCAZ values. In addition, another multiple regression analysis, even after considering sociodemographic variables, indicated a significant association between the age at complementary food initiation and WAZ, WHZ, MUACAZ, and HCAZ in children 2–5 years old.

Conclusions: This study examined the association between child malnutrition and the age at complementary food initiation and found that 1) about half of the children in the studied area exhibited stunting, which indicates chronic malnutrition; 2) approximately 30% of children were underweight; and 3) starting complementary foods at appropriately 5–7 months after birth has a positive effect on nutritional status from 2 years of age. These findings suggest that promotional activities concerning the age at complementary food initiation are important.