

PJN

ISSN 1680-5194

PAKISTAN JOURNAL OF
NUTRITION

ANSI*net*

308 Lasani Town, Sargodha Road, Faisalabad - Pakistan
Mob: +92 300 3008585, Fax: +92 41 8815544
E-mail: editorpjn@gmail.com



Research Article

Food Choice Practices among Underweight and Normal-weight Children under Five Years of Age in West Java, Indonesia

¹N.W. Prasodjo, ⁴N.K. Pandjaitan, ²R. Kinseng and ³A. Khomsan

¹Department of Communication and Community Development Sciences, Bogor Agricultural University, KPP IPB Baranangsiang IV Blok C No. 28, Bogor 16710, Indonesia

²Department of Communication and Community Development Sciences, Bogor Agricultural University, Kompleks Baranangsiang Indah Blok H IV/No. 8, Bogor 16710, Indonesia

³Department of Community Nutrition, Bogor Agricultural University, Jalan Teratai Blok B No. 59, Bogor 16710, Indonesia

⁴Department of Communication and Community Development Sciences, Bogor Agricultural University, KPP IPB Baranangsiang IV Block B No. 25, Bogor 1670, Indonesia

Abstract

Background and Objective: The nutritional status of underweight children under five years of age (Toddlers) remains a serious problem in Indonesia. Previous studies have shown that children's nutritional status and health are affected by the social practices related to their food choices. The aim of this study was to identify (1) The types of routine social practices involved in toddlers' food choices, (2) The effects of these practices on food consumption and nutritional status and (3) The social structures including rules and resources that may be associated with these practices. **Methodology:** This survey was conducted in rural communities in the highlands and lowlands of West Java Province, Indonesia and included 200 mothers as respondents. The correlations and differences between the variables were determined using t-tests and Spearman's rank, Pearson and Mann-Whitney tests. **Results:** The results indicated a significant correlation between food choice practices and the consumption of foods that worsen nutritional status (Carbohydrates and street food). The structures that played a role as barriers or enablers of the social practices of food choice included control over income, control over means of transportation, control over the selection of various types of food supplied from outside the community, food regulations for children who suffer from pain, family support and parenting norms. **Conclusion:** These results suggested that to overcome malnutrition issues, policies for nutritional improvement should consider relevant social structures.

Key words: Food choice, Indonesia, nutritional status, social practices, structure

Received: February 07, 2017

Accepted: May 23, 2017

Published: July 15, 2017

Citation: N.W. Prasodjo, N.K. Pandjaitan, R. Kinseng and A. Khomsan, 2017. Food choice practices among underweight and normal-weight children under five years of age in West Java, Indonesia. Pak. J. Nutr., 16: 588-598.

Corresponding Author: N.W. Prasodjo, Department of Communication and Community Development Sciences, Bogor Agricultural University, KPP IPB Baranangsiang IV Blok C no 28 Bogor 16710, Indonesia

Copyright: © 2017 N.W. Prasodjo *et al.* This is an open access article distributed under the terms of the creative commons attribution License, which permits unrestricted use, distribution and reproduction in any medium, provided the original author and source are credited.

Competing Interest: The authors have declared that no competing interest exists.

Data Availability: All relevant data are within the paper and its supporting information files.

INTRODUCTION

From 2007-2013, the prevalence of underweight children under five years old in Indonesia surged from 17.9-19.6% and the prevalence of stunting increased from 36.8-37.2%, indicating a national public health problem. The high prevalence of underweight and stunting may reflect not only acute nutritional problems but also problems with chronic malnutrition. Acute nutritional problems among children are usually caused by events that occur in a short time frame, such as a disease (Diarrhea and other infections) or lack of food and result in children becoming thin. In contrast, chronic malnutrition that leads to stunted children is usually caused by circumstances that last longer, such as poor feeding from an early age or other unhealthy behaviors¹.

The Indonesian government has aimed to lower the prevalence of underweight through a number of initiatives. For children under five years of age, these efforts have typically been in the form of education to increase mothers' knowledge of food practices² through integrated health service posts (*Posyandu*), which are widespread throughout rural areas of Indonesia, as well as direct interventions in the form of supplementary feeding (*Pemberian Makanan Tambahan*)³. However, both of these efforts have not been fully successful in reducing the prevalence of underweight. Increased knowledge does not necessarily lead to permanent changes in eating habits and the improvement that was achieved in children's nutritional status did not last long.

Previous studies have indicated that children's nutritional and health status is associated with routine practices of food choice⁴⁻⁷. Food choice practices are defined as the activities used to select and consume food and beverages by considering why, how, when and where food is selected, the type of food in question, the individual selecting and eating the food, with whom the food is consumed and other aspects of eating behavior⁸. In referring to these aspects, the selection activities also include processes such as the creation, preparation, manufacturing, supervision and management of food.

Food choice practices as a form of individual behavior have generally been described under the assumption that a practice occurs based on the full autonomy of an individual. This assumption is reflected in the findings regarding motives, attitudes, perceptions, emotions, feelings of time scarcity and suggestions for management, among others⁹⁻¹⁷. However, explanations regarding how the social structure shapes individuals' behaviors are scarce.

From a sociological perspective, food choice practices are typically viewed as patterns of human activity or as a dynamic process that is integrated within the social structures of these patterns. Therefore, understanding how the social structure shapes the behavior of individuals as food managers is important within the framework of transforming the structure to improve nutrition for children under five years of age. This research was conducted to achieve the following objectives:

- To identify the types of routine food choice practices for children who are aged under five years
- To analyze the effects of food choice practices on children's consumption behaviors and nutritional status
- To analyze the forms of social structures (Rules and resources) that constrain and enable food choice practices

MATERIALS AND METHODS

This study targeted the main managers of food for toddlers (Mothers or a mother substitute) in the Sundanese community of West Java province. The selected community is characteristic of the local highland and lowland agricultural communities and has experienced many cases of underweight toddlers. This study used surveys, in-depth interviews of the respondents and informants and observations. To represent the surveyed population, the respondents were randomly drawn from 200 individuals who were responsible for managing toddlers' food. These respondents were randomly sampled from individuals who managed the food of toddlers with underweight or normal nutritional status. The respondent cases were selected from food managers (Mothers or mother substitutes) of both poor and wealthy households.

The units of analysis in this study were individuals and communities. The collected data were processed using SPSS 16.0 (SPSS Inc., Chicago, IL, USA) for Windows and were then analyzed by inferential statistics with techniques adapted for the analysis and the data measurement scales. The statistical tests that were used included t-tests, Mann-Whitney test, Pearson correlation coefficient significance test and Spearman rank test. The variables representing the rules and resources that were significantly correlated with food choice practices were further explored by seeking the qualitative descriptions in certain cases. The qualitative data were analyzed in two ways. First, the role of the social structure was described by category of food choice practice and then grouped according to the type of constraints and structural enablers.

RESULTS

Food choice practices of children under five years of age:

The highland and lowland communities possessed different characteristics in terms of the food choice practices of children under five years of age. Almost all the categories of daily food choice practices of food managers in the highlands greatly differed in frequency from those of food managers in the lowlands. Only the practice of buying ready-to-eat snacks, food and drinks in a food stall or from a peddler was performed to the same extent by food managers in the highland and lowland communities (Table 1).

Four categories of food choice practices were more frequently performed by food managers in the highland community, namely, (1) Monitoring children’s intake of healthy foods, (2) Making sure that children eat, (3) Shaping children’s future food choices and (4) Monitoring food choices to maintain good health. One category of food choice practices was more frequently performed in the lowland community: Making dishes, meals and snacks.

Effects of food choice practices on consumption practices and nutritional status:

This study found a correlation between the use of food choice practices and the average frequency of consumption of specific foods (Consumption practices). In the highlands, the food types that differed in consumption by the frequency of food choice practices were snacks, vegetables and fruits. In contrast, the lowlands food types that differed by the frequency of food choice practices were carbohydrates, snacks and vegetable proteins (Nuts) (Table 2).

The food choice practices in the highland community indicated that (a) Children ate snacks more often when food managers more frequently used food services ($r = 0.26, p = 0.01$) and more rarely made meals and snacks ($r = -0.23, p = 0.021$). Moreover, in the highlands, (b) The consumption of vegetables and fruits increased when the food managers more frequently ensured that children ate ($r = 0.29, p = 0.00$) and when they used food services more frequently ($r = 0.21, p = 0.04$) (Table 2). The results regarding these practices showed that in the highlands, the types of

Table 1: Average score* by category of food choice practices in the highland community of Purwakarta and the lowland community of Karawang in 2015

Category of food choice practices	Average score (n = 100)		*p-value of Mann-whitney test
	Highland	Lowland	
Monitoring children’s ‘wholesome’ food intake	2.52	2.16	0.00**
Ensuring that children eat	1.83	1.64	0.01**
Shaping children’s food choices	1.81	1.54	0.00**
Monitoring food choices for children’s health	1.69	1.54	0.04**
Using services (Buying foods ready in a stall or from a peddler) for children	1.50	1.55	0.45
Making meals and snacks for children	1.14	1.38	0.03**
Total	1.75	1.64	0.00**

*Average score ranged from 0-3, 0 = Never performed, 1 = Rarely performed, 2 = Frequently performed, 3 = Always performed, #Median frequency of food choice practices differed significantly between food managers in highland and lowland communities at $p = 0.05$

Table 2: Categories of food choice practices of food managers that were significantly correlated with the consumption of certain food types among children under five years of age in the highlands of purwakarta and the lowlands of Karawang in 2015

*Category of food choice practice	#Consumption practice of food					
	Carbohydrates	Animal protein	Vegetable protein	Vegetables and fruits	Street food	Oil and shortening
Monitoring children’s ‘wholesome’ food intake					-√	
Ensuring that children eat	√		√	×		
Shaping children’s food choices	√					
Monitoring food choices for health	√					
Using food services (Buying food at food stalls) for children				×	×√	
Making meals and snacks for children					×	

*Variations in food choice practices were reflected in the average composite score of the practice and ranged on a scale from 0-3, meaning never performed to always performed (n = 200), #Variations in consumption of certain types of food were reflected in the average frequency of consumption categorized into low, medium and high (ordinal scale). The variations in the frequency category for the consumption of carbohydrates and animal protein were based on a reference value, while the variations in the frequency category for the consumption of other foods (vegetable protein, fruits and vegetables, snacks and oils and fats) were based on standard deviation calculations (categorization of the normal distribution), x: Spearman rank test showed that there was a significant correlation between two variables at a significance level of 0.05 in the highland community, √: Spearman rank correlation test showed that there was a significant correlation between two variables at a significance level of 0.05 in the lowland community, -: Spearman rank correlation test showed that there was a two-way correlation between the two variables that had a negative correlation in the lowland community

Table 3: Number and percentage of children under five years of age by the frequency of food consumption (carbohydrates, vegetables and fruits, animal protein and street food) per person per month and their nutritional status in the lowland community in 2015 (n = 100)

Food group	Frequency of consumption/month	Good nutrition		Lack of nutrition+ poor nutrition (underweight)		Total investigated children under five (n = 100)		Correlation coefficient (r)	p-value
		n	%	n	%	n	%		
Carbohydrates	Often	52	57.1	39	42.9	91	100	-0.17	0.09
	Moderate	6	75.0	2	25.0	8	100		
	Seldom	1	100.0	0	0.0	1	100		
Vegetables and fruits	Often	5	41.7	7	58.3	12	100	-0.08	0.51
	Moderate	52	60.5	34	39.5	86	100		
	Seldom	2	100.0	0	0.0	2	100		
#Animal protein	Often	56	59.6	38	40.4	94	100	-0.08	0.42
	Moderate	3	100.0	0	0.0	3	100		
	Seldom	0	0.0	3	100.0	3	100		
Street food	Often	6	40.0	9	60.0	15	100	-0.17	0.10*
	Moderate	41	59.4	28	40.6	69	100		
	Seldom	12	75.0	4	35.0	16	100		

*Categorization of carbohydrate consumption frequency used the following reference: Often (≥ 90 times/month), moderate (60-89.9 times/month) and seldom (< 60 times/month). #Categorization of animal protein consumption frequency used the following reference: Often (≥ 20 times/month), moderate (10-19.9 times/month) and seldom (< 10 times/month). *p-value, which was based on the Pearson correlation test between the frequency of consumption and the z score weight/age of children under five years of age, showed no significant association at a 90% confidence interval. Negative r values indicated an inverse relationship between both variables and when the children consumed (carbohydrates and snack food) more often, they had worse nutritional status

food consumed by children under five years of age were more often ready-to-eat snacks (Fast food) and that many of these snacks were purchased from street vendors and stalls. Ready-to-eat snacks included vegetables dishes and fruit slices. The practice of ensuring that children ate was more focused on monitoring their health and ensuring that they consumed various types of vegetables and fruits (i.e., certain vegetables and fruits had to be consumed even if food managers purchased fruit slices from vegetable vendors).

The practices that appeared in the lowland community were that (a) children consumed carbohydrates more often when the food managers more frequently ensured that children ate ($r = 0.28, p = 0.01$), more frequently shaped future food choice in terms of letting children choose the food that they liked ($r = 0.21, p = 0.03$) and less frequently monitored food choices according to health ($r = -0.20, p = 0.05$), i.e., did not adjust the type of food usually consumed to foods considered healthy. Moreover, (b) Children ate snacks more often when the food managers rarely monitored their healthy food intake ($r = -0.27, p = 0.01$) and more frequently used food services ($r = 0.26, p = 0.01$) and (c) Children ate less vegetable proteins that were derived from nuts when the food managers more frequently ensured that their children ate. These practices showed a tendency that differed from those of the highland community. The practice in the highland community of ensuring that their children ate tended to increase the frequency of fruit and vegetable consumption, while the same practice in the lowland community tended to increase the

frequency of carbohydrates consumption and decrease the frequency of vegetable protein consumption.

This study also examined the relationship between the average frequency of the consumption of food types (Consumption practices) and children's nutritional status. The findings indicated that the nutritional status of children under five years of age was significantly correlated with their food choices in the lowland community only, not in the highland community. In the lowland community, children who increasingly consumed carbohydrates ($r = -0.17, p = 0.09$) and snack foods ($r = -0.17, p = 0.1$) tended to have worse nutritional status (Table 3), while in the highland community, the differences in the frequency of eating a food type distinguished the nutritional status of children under five years of age only when the children were ill. Children who suffered more severe infections (ARI) were likely to have a worse nutritional status ($r = -0.18, p = 0.08$) (Table 4).

Roles of social structure (Rules and resources) in shaping food choice practices

Social structure constraints/supports in the highland community: To identify the forms of structure that significantly distinguished between food choice practices, t-tests were conducted. The results showed that there was a significant difference between the number of categories of food choice practices with structural problems and the categories that were not subject to any structural constraints.

Table 4: Number and percentage of children under five years of age by types of diseases that they suffered from in the past month and their nutritional status in the highland community of Purwakarta in 2015 (n = 100)

Types of diseases	Good nutrition		Lack of nutrition+poor nutrition(underweight)		Total of children under five by types of diseases that they past month from within the past month		Coefficient correlation (r)	*p-value
	n	%	N	%	N	%		
ARI	27	64.3	15	35.7	42	100	-0.18	0.08*
Fever-diarrhea	13	65.0	7	35.0	20	100	-0.06	0.55

*p-value calculations were based on Pearson’s correlations test between the scores of morbidity for each disease and z score weight/age. The morbidity scores were obtained by multiplying the duration of illness (days) by the weight of each child’s illness. The weight of the disease was determined by ARI (2), fever (2), diarrhea (3), cardiac disorders (5) and tuberculosis (5). *In the results of Pearson’s correlation test, there was a significant relationship at a 90% confidence level (p<0.1) between ARI and the nutritional status of children under five years of age. The correlation coefficient (r) showed a negative relationship between the two variables when the direction was reversed. When the ARI was more severe, children’s nutritional status was worse

Table 5: Structures that significantly constrained/enabled food choice practices in the highland community of Purwakarta in 2015

*Category of the practice of food choice	Structures that constrain/enable		
	Control over financial matters	Control over the means of transportation	Control over the choice of various types of food outside the community
Monitoring children’s intake of ‘wholesome’ food			
Ensuring that children eat			
Shaping children’s food choices	√		
Monitoring food choices for health			
Using food services (Buying at a food stall) for children			
Making meals and snacks for children.		√	√

*Variations in the practice of food choice were reflected in the average score of composite practices with scores ranging from 0-3, meaning never performed to always performed. √: Based on a t-test between two independent variables, a value of p<0.05 and rejection of H₀ meant that there was a significant difference between the food choice practices of food managers who experienced the constraint and the food managers who did not experience the constraints

Table 5 shows that in the highland community, there were several structures that were perceived as barriers to food managers and supporters of food choice practices. The constraint/structural supports were (1) Control over financial matters (Allocative resources-structures of domination), which differed in the practice of shaping children’s food choice, (2) Control over the choice of various types of food from outside the community (Authoritative resources-structures of domination) and (3) Control over the means of transportation (Allocative resources-structures of domination) to access food sources outside the community. The latter two forms of structure, that is, control over the choice of various types of food from outside the community and over the means of transportation, determined the practice of making dishes and snacks for children.

In the highland community, three categories of food choice practices were significantly correlated with children’s frequency of consumption of certain foods, specifically, vegetables, fruits and street foods. These three practices were (1) Ensuring that children ate, (2) Using food services and (3) Making meals and snacks.

Food managers’ practice of ensuring that children ate food or the practice of using food services was based more on the ideal motive of good health, which tends to emphasize the

decision and need for children to eat vegetables, fruits and snacks. Both practices encountered no significant structural constraints and were thus often used [as reflected in the average score of practices of 1.83 (often) and 1.5 (moderate) on a scale from 0-3].

In contrast, the practice of making dishes and snacks were based on multiple motives (e.g., motives to obtain natural foods, to maintain affordable costs and to accommodate the tastes of children as well as motives pertaining to the ability to obtain raw materials). This practice actually tended to be enabled by difficulty obtaining transportation (Allocative resources-structures of domination) to access many other desired foods and by the lack of variety of raw foods, as the variation and distribution of foods were determined by traders outside of the community (Authoritative resources-structures of domination). Creating dishes and snacks was performed relatively more often by food managers who had difficulty with means of transportation than food managers who did not experience such difficulties (Based on a score of 1.34 compared with 1.02). Food managers who had difficulty choosing foods because of a lack of variety also created dishes and snacks more often than those who did not experience these difficulties (Expressed as a score of 1.29 compared with 1.02). When food

managers created dishes and snacks more often, their children tended to consume unhealthy packaged snacks less often. Difficulty with transportation and the lack of variety of foods from outside the community in fact enhanced (enabled) the practice of creating dishes and snacks, which improved the nutritional and health status of children under five years of age.

In the studied highland community, the influx of manufactured food has led to a wide range of consumers, including children under five years of age and could change their consumption behavior. This phenomenon has emerged in the past five years in this region along with increased access as a result of the improved road infrastructure in the village. The consumption behavior of children whose original diet was a full meal three times a day has gradually turned into meals 2 times a day because lunch is replaced with snacks. The changes in children's consumption behavior have been described by the residents as "Bilutung dulang" to "Bilutung warung", that is, children in the past primarily consumed dishes that their mothers cooked, but this is changing and children are currently eating more manufactured (packaged) food from stalls or peddlers.

In addition to the three categories of food choice practices with a significant influence on the frequency of children's food consumption, the differences in use of three other categories of food choice practices did not significantly alter the frequency of food consumption but did play a role in shaping children's food quality. These three practices were (1) Monitoring children's intake of healthy food, (2) Shaping children's food choices and (3) Monitoring food choices for good health.

Monitoring healthy food intake in practice was significantly constrained by a lack of cooking skills in food managers. The practices of a food manager in monitoring children's intake of healthy foods include knowing what children have eaten and being able to control their food hygiene. When they lack cooking skills, food managers tend to rely more on food that is sourced from other parties (Family, traders, etc.). Therefore, these food managers can no longer directly maintain food security or ensure the hygiene of processed food consumed by children under five years of age.

The practice of establishing children's food choices was enabled by financial difficulties paying for food. The practices in shaping children's food choices include allowing children to choose their own preferred main meal, allowing children to eat snacks instead of lunch and requiring children to consume a full meal with a frequency that is appropriate for habit patterns. The practices of shaping children's food choices were performed relatively more frequently by food managers who

experienced financial difficulties than food managers who did not experience these difficulties (Reflected in a score of 1.83 compared with 1.66). The effects of financial difficulties in paying for food, in fact, tend to increase the practice of food managers choosing foods that their children really liked, either food made at home or street food as a substitute for lunch. The argument presented by these food managers was "To make sure that the food is eaten by their children and not wasted". The lack of financial understanding shaped the choice to use less healthy street foods.

However, the practice of monitoring food choices for good health was not subject to any significant structural constraints.

Social structure constraints/supports in the lowland community:

In the lowland communities, there were five categories of food choice practices that should be observed because of their close association with the frequency of specific food consumption among children, especially the consumption of street food, carbohydrates and vegetable proteins (beans). These five practices were (1) Monitoring children's intake of healthy food, (2) Using food services, (3) Ensuring that children eat, (4) Shaping children's food choices and (5) Monitoring food choices for good health. The practice of making dishes and snacks, although performed did not affect the frequency of food consumption.

Of the five categories of food choice practices, two categories should be enabled to improve children's nutritional status by leading to reduced carbohydrate and street food consumption. These categories were (1) Monitoring "Healthy" food intake and (2) Monitoring food choices for good health.

In addition, the use of three categories of food choice practices should be constrained because they could worsen children's nutritional status. Greater use of these three practices tended to increase the frequency of the consumption of carbohydrates and street food and decrease the frequency of the consumption of vegetable proteins. These three categories of food choice practices were (1) Ensuring that children eat, (2) Shaping food choices and (3) Using food services.

In general, the structures that constrained or enabled many categories of food choice practices in this community were as follows: (1) Control over the choice of food types from traders outside the community (Authoritative resource-domination structures), (2) Parenting norms regarding children (Rules-legitimacy structure), (3) Family support (Authoritative resource-domination structure) and (4) Rules about food for sick children (Rule-legitimacy structure) (Table 6).

Table 6: Structures that significantly constrained/enabled food choice practices in the lowland community of Karawang in 2015

*Category of food choice practice	Structure that constrained/enabled			
	Control over the choice of many foods from outside the community	Rules of food for sick children	Family support	Norms for children's caregivers
Monitoring 'healthy' food intake	√	√		√
Ensuring that children eat			√	
Shaping children's food choices			√	
Monitoring food choices for good health			√	
Using food services (Buying food at food stalls)				√
Making meals and snacks for children		√	√	

*Variation in the food choice practices was reflected in the average composite score, which ranged from 0 to 3, meaning never performed to always performed. √: Based on a t-test between 2 independent variables and a p-value < 0.05 and rejected H₀ meant that there was a significant difference between the food choice practices of food managers who faced constraints and those who did not, at a significance level of 0.05

Monitoring children's intake of healthy foods included actions to supervise all foods consumed by children and to maintain cleanliness in the cooking process or in the processing of food and was enabled by having rules about food for sick children. However, this practice was constrained by parenting norms that supported the consumption of street food (Rule-legitimacy structure) and by control over the variety of street food types provided by traders from outside the community (Authoritative resource-structures of domination). Parenting norms (i.e., the shared values in the community including the perception that affection towards children can be exhibited by granting every child's wish in terms of food, feeling ashamed on the parents' part and becoming a source of gossip among neighbors when a child cries) and increased variation in the types of ready-to-eat foods or snacks in the community decreased food managers' monitoring of children's intake of healthy foods. When children's healthy food intake was monitored less frequently, children were more likely (often) to eat street food, which resulted in worse nutritional status.

In contrast, using food services (i.e., purchasing ready-to-eat foods such as street foods and foods to replace a meal) was enabled by the norm of nurturing children with local food. The childcare norms that exist in this community tended to support snacking and sharing snacks among peers. The social norms that applied to food managers who violated the local upbringing norms included negative rumors regarding the quality of care provided, such as that parents are stingy, do not love their children, do not fulfill the obligations of care, that children are "Fussy" and do not get along with others, for example. These types of social sanctions led to embarrassment among food managers. The facilitators of these parenting norms regarding food increased the degree to which food managers used food services (i.e., purchased ready-to-eat food from food merchants or peddlers). The increasingly frequent use of food services increased children's consumption of street food and tended to worsen their nutritional status.

Both of these food practices, namely, the decreased monitoring of children's intake of healthy foods and increased use of food services, developed because of the interaction of three structural factors. These factors were (1) Traders' control over the choice and variety of food in the community, (2) Parenting norms regarding food and (3) Rules about food for sick children (Must avoid specific foods). To explain the use of these practices, food managers explicitly stated that they performed these actions to obtain easy access to food, to cater to children's wishes and to adapt the types of food to those are already familiar.

Ensuring that children eat, shaping children's food choices and monitoring food choices for good health were exhibited by food managers at a "frequent" level (Indicated by an average score of each practice of 1.6, 1.5 and 1.5, respectively, on a scale from 0-3). The three practices were facilitated by support of family members. Food managers often received the support of family members when persuading children that they wanted to eat and family members even actively participated in providing certain foods to children under five years of age. In some cases, older brothers/sisters influenced their younger siblings who did not initially want specific foods and affected their sibling's behavior (e.g., trying to eat noodles, seblak, etc., in the event of mayoran). Other cases showed how a grandmother, grandfather, uncle or aunt who lived in the same house or nearby gave certain foods to children under five years of age when the food manager was not present.

Meals and snacks were made relatively rarely (score 1.4). This practice was only occasionally performed when a child was sick, it was facilitated by food rules for sick children but decreased by food managers' feelings of having limited time. Feelings of having limited time, in this case, can also be interpreted as a function of structures that result in women having multiple roles and obligations because of their position as a mother and wife. Briefly, the rules regarding food for sick children and women's social roles were the social structures that simultaneously enabled and inhibited the practice of making meals and snacks.

DISCUSSION

This study highlighted the regular food choice practices performed by household food managers for children under five years of age. Efforts to understand the establishment of children's routine food practices are important in the context of policy planning and actions for children's nutrition and good health. The limited explanations regarding food choices and their dynamic organization within family life encourage researchers to use the conceptual framework of social practices¹⁸ to analyze the reality of food selection. Social practices in this study were understood as people's actions that depend on the social context of their everyday life. The concept of social practices recognizes individuals' ability to make choices because they have extensive knowledge (individuals' sense of agency). The concept of social practices also recognizes that choices have always been shaped by rules and resources that reflect the context of objectives and actions. Concerning social structures, rules and resources are generally distributed differently and thus differences in the rules and the control over these resources may differentially constrain or enable the social practices of a person or group of people. The rules and these resources are also recognized to be present in a repeated manner (routine), which explains how practices are organized or structured into repetitive patterns over time. These practices are routinely viewed as the basis and explanation for the formation of a social system.

The concept of social practices is derived from the theory of structuration¹⁸ and examines the duality of structures. The perspective of duality of structure is a critique of the idea of a dualism structure, which includes constructionism-phenomenological on the one side and structural-functional on the other. The dualism structure in question pertains to two opposing perspectives regarding the understanding of human social action. On the one hand, phenomenological constructionism believes that social action is entirely in the individual's autonomy or internal drive and reflects the motives, intentions or pure ideas about the purposes of an action. On the other hand, structural functionalists view human social action as an action that is entirely formed by an external drive or because of the pressures from social structures. To bridge these two ideas, the concept of social practice in the structuration theory assumes that a practice or a social action is a simultaneous interplay between agency and social structures.

Concerning food choices, the findings regarding the formation of social practices pertaining to food choice do not solely focus on structure or on the behavior of an autonomous individual (Agency) but at the intersection of both, namely,

the social practices of repetitive food choices and patterns across space and time¹⁹. The structures in this case are no longer considered to be external to individuals but internal instead. A food manager for children under five years is considered to be autonomous and to contribute to control of the structure; however, the social structure cannot be prevented from widening into space and time beyond the control of the food managers' individual actions²⁰. Therefore, from this perspective, the structure is not always viewed as pressing, forcing or limiting food managers into action but rather as presenting two possibilities, that is, limiting or enabling action (practice). Similarly, food managers as agents can act intentionally to achieve their objectives, but they may simultaneously face the unintended consequences of their actions. These unintended consequences can occur from the existing defined structure. In the interaction between agency and structure, the role of agency could be considered more prominent when a food choice practice is performed by food managers with a feeling of ease, comfort or satisfaction or the ability to control the situation. Conversely, the role of structure is deemed to be more pronounced when food managers describe their experience with food choice practices as being difficult, challenging or dissatisfying.

Regarding the food choice practices in the two studied communities, almost all the categories of food choice practices performed by the agents (the food managers for children under five years of age) were simultaneously based on multiple motives. Of the many motives behind food choices, almost all of the food managers recognized that the health of children under five years of age was one consideration, although they were often forced to not make it their top priority. Food managers were often forced to change priorities in response to the particular barriers or support structures that they experienced.

The food managers in both of the studied Sundanese communities were aware of the importance of establishing food patterns for children's health. The expectations regarding parenting children in the Sundanese culture were reflected in expressions that were shared among the Sundanese communities, that is, producing children who are *cageur bageur bener pinter*-healthy, honest, right and clever²¹. Children are expected to remain healthy, honest, right and clever by adapting to different situations. In this case, health was recognized by parents in Sundanese communities as the most important factor in the development of children. In addition, the process of upbringing in the Sundanese culture does not appear to aim to produce individuals who are individualistic but is more concerned with social characteristics and conformity. The value of togetherness is

prominent in the child-rearing process and the value of conformity is also a focus of parents, especially mothers, who normally have the responsibility of caring for children under five years of age. Mothers often feel guilty and apologetic if they cannot meet their children's desire for snacks outside the home when other children's mothers can accommodate this desire. Compliance with this value is often a dilemma for mothers when they consider that many types of street foods are unhealthy.

Ultimately, perceived dilemmas often result in certain compromises in defining the quality of healthy food and of healthy children. Many of the food managers in both the highland and lowland communities described "Healthy food" and "Healthy children" in a way that reflected a combination of their knowledge and the reality of the constraints that they faced in implementing food-related practices. When considering eating, people classify objects into foods and non-foods or into healthy and unhealthy foods according to their personal beliefs about the value of food choices⁸. Personal managers classify nutritious foods for children under five years of age in a manner consistent with the classification scheme of their immediate social environment (Family, friends and neighbors), which is embedded within the classification scheme of the broader cultural environment (Community or tribe). This field study found that the food that was classified and considered healthy or unhealthy and the quality of child health that was described as healthy or less healthy by the social environment (Family, neighbors and community) was somewhat similar to the food managers' personal classification and description. However, the classification of healthy and unhealthy foods and the quality of healthy children common among the food managers somewhat differed from the definitions used by many food and child health experts.

Furthermore, the interaction between agency and social structure was reflected when the structure was no longer considered external to individuals but internal in their memories; this structure was viewed as a constraint but could also be considered to enable food choice practices. In these two research communities, some types of structures were identified that could constrain or enable food choice practices. Some of these structural forms included the extent of the food managers' authority over their family income to financially procure food (Allocative resources-structures of domination), the presence or absence of access to transportation or the ability to master the means of transportation to reach a food source (Allocative resources-structures of domination), the opportunity to choose various types of food from outside the community that are desired by the food manager

(Authoritative resources-structures of domination), the degree of family member support in realizing the proposed goal through actions desired by the food managers (Authoritative resources-structure of domination), the rewards/sanctions received from the implementation/violation of food rules for sick children (Rule-structure of legitimacy) and the degree of rewards/sanctions received from the implementation/infringement of the child parenting norms idealized in the community (Norm-structure of legitimacy).

The term 'Power' in this case was distinguished from the term 'domination'. Domination refers to an asymmetrical relationship at the structural level, whereas power addresses the relationship asymmetry at the practice/social interaction level. Power does not refer to indications in the system but concerns the inherent capacity of the actors (Food managers) and thus always involves transformative capacity¹⁹. Authority can occur through the mobilization of domination structures, in this case, through the mobilization of two resources that comprise domination schemes. The two resources were allocative resources (Possession of goods/economy) and authoritative resources (Authority over persons/politics).

Based on the findings of this study, transformative efforts should be conducted to enable food choice practices that improve the nutritional status of children under five years of age. Priority should be placed on efforts that reduce structural barriers such as transformations at the practice/social interaction level. Transformation is intended to enable food choice practices that either directly or indirectly contribute to the improvement of nutritional status.

In the highlands, the social practices of food choice that contributed to the formation of proper nutritional status of children under five years of age were (1) Monitoring children's intake of healthy food, (2) Ensuring that children ate and using food services, which contributed to the increased frequency of fruit and vegetable consumption, (3) Creating dishes and snacks, which contributed to reduced consumption of snacks that are high in sugar and carbohydrates and (4) Forming appropriate food choices.

The three forms of social structure that constrained food managers' food choice practices in the highlands were the presence of an asymmetrical structure regarding (1) The limited allocative resources, which were reflected by the limitations of food managers in obtaining access to infrastructure and the means of transportation to reach food sources (Markets outside the community), (2) The strong authoritative resources of merchants outside the community, which were reflected by the limitations in local foods and the high dependence of food managers on the types of food supplied from outside the community and (3) The limited

family income to pay for food options, as most families were still highly dependent on transfers of income from the household head/breadwinner, who often worked in construction outside the community. The agents also seemed to predominantly engage in enabling food choice practices. These enabling factors included cooking skills that helped food managers feed their children themselves and directly affected the extent to which they monitored their children's healthy food intake.

In the lowlands, the social practices related to food choice that significantly contributed to the nutritional status of children under five years of age were (1) Monitoring children's intake of healthy foods and using food services, both of which contributed to decreasing the frequency of street food consumption, (2) Ensuring that children ate, shaping food choices and monitoring healthy food choices, which contributed to reducing the consumption of carbohydrates and (3) Ensuring that children ate, which contributed to increasing the frequency of vegetable protein (beans) consumption.

The social structures that hinder food choice practices in the lowland community were (1) The presence of an asymmetrical structure of strong authoritative resources among traders outside the community and a high dependency of food managers on the selection of foods, with a low variety, supplied from outside the community and (2) Child parenting norms (legitimate structure), which limited the monitoring of healthy food intake. In contrast, the social structures that enabled food choice practices in the lowlands were (1) The rules of food for sick children (Structure legitimacy), which enabled the monitoring of healthy food intake and the creation of dishes and snacks for children and (2) The support of family members (structures of domination) through their influence and contribution in terms of power, which enabled the practices of ensuring that children ate and of shaping children's food choices.

Efforts to achieve structural transformation in the lowland community to improve the nutrition and health of children under five years of age could include (1) Reducing the dependence of food managers on food sources from outside the community, especially packaged ready-to-eat snacks, by promoting local food sources that are more varied (structures of domination), (2) Affirming the authority of family food managers in choosing healthy foods (Natural, fresh and varied) for children under five years of age (Structures of domination) and (3) Promoting the parenting norms that promote good health (the structure of legitimacy).

CONCLUSION

This study revealed that the types of practices and the forms of structure "Constrain" and "Enable" the social practices related to food choice. These findings may be useful for changing the social structure to improve the nutritional status of children under five years of age. This study may help researchers uncover the critical area of "Structural barriers or structural constraints in the consciousness of individual food managers", which many researchers have not been able to explore. Thus far, most researchers have tended to consider "The practice of selecting food" as a result of individual autonomy or agency only. Few researchers have explained the practice of food selection as a form of linkage or interplay between agency and structure. Thus, a new theory on social practice that connects agency and social structure, especially in the field of food choice, may emerge.

ACKNOWLEDGMENTS

Special thanks to the Directorate General of Higher Education, Ministry of Research, Technology and Higher Education of the Republic of Indonesia (DIKTI), who facilitated this research with a research fellowship. We would also like to thank Yayasan Nurani Dunia for contributing to the success of this work. We would also like to acknowledge the support of all the participating respondents in the two researched communities and all the participants for their cooperation.

REFERENCES

1. Ministry of Health, 2013. Basic health research 2013. BPPK Kemenkes RI., Jakarta, Indonesia.
2. Sukandar, D., A. Khomsan, F. Anwar, H. Riyadi and E.S. Mudjajanto, 2015. Nutrition knowledge, attitude and practice of mothers and children nutritional status improved after five months nutrition education intervention. *Int. J. Sci. Basic Applied Res.*, 23: 424-442.
3. Tanziha, I., G. Prasodjo, I. Rahmawati, Maharani and D. Rusmawatu, 2013. Feeding school children in improving nutritional status of students at SDN pasanggrahan 2 purwakarta. A Report of an Action Study, Yayasan Nurani Dunia-IPB, Jakarta, ID.
4. Delormier, T., K.L. Frohlich and L. Potvin, 2009. Food and eating as social practice-understanding eating patterns as social phenomena and implications for public health. *Sociol. Health Illness*, 31: 215-228.

5. Koro, S., Irvan and Petrus, 2015. The relationship of food consumption with nutritional status of children under two years at Tolaki tribe families in sub district of Abeli. *J. Int. J. Sci. Basic Applied Res.*, 24: 367-377.
6. Lateef, O.J., E. Njogu, F. Kiplamai, U.S. Haruna and R.A. Lawal, 2016. Breakfast, food consumption pattern and nutritional status of students in public secondary schools in Kwara state, Nigeria. *Pak. J. Nutr.*, 15: 140-147.
7. Paputungan, H., 2002. Nutritional status of children under five of the households that join a PMT program for pregnant mothers JPS-BK. Ph.D. Thesis, Bogor Agricultural University, Bogor, Indonesia.
8. Sobal, J., C.A. Bisogni, C.M. Devine and M. Jastran, 2006. A Conceptual Model of the Food Choice Process over the Life Course. In: *The Psychology Food Choice*, Shepherd, R. and M. Raats (Eds.). CABI, UK, ISBN: 9781845930868.
9. Chartrand, T.L. and G.J. Fitzsimons, 2011. Nonconscious consumer psychology. *J. Consumer Psychol.*, 21: 1-3.
10. Jabs, J. and C.M. Devine, 2006. Time scarcity and food choices: An overview. *Appetite*, 47: 196-204.
11. Ji, M.F. and W. Wood, 2007. Purchase and consumption habits: Not necessarily what you intend. *J. Consumer Psychol.*, 17: 261-276.
12. Macht, M., 2008. How emotions affect eating: A five-way model. *Appetite*, 50: 1-11.
13. Milosevic, J., I. Zezelj, M. Gorton and D. Barjolle, 2012. Understanding the motives for food choice in Western Balkan Countries. *Appetite*, 58: 205-214.
14. Pettinger, C., M. Holdsworth and M. Gerber, 2004. Psycho-social influences on food choice in Southern France and Central England. *Appetite*, 42: 307-316.
15. Prescott, J., O. Young, L. O'Neill, N.J.N. Yau and R. Stevens, 2002. Motives for food choice: A comparison of consumers from Japan, Taiwan, Malaysia and New Zealand. *Food Q. Prefer.*, 13: 489-495.
16. Sun, Y.H.C., 2008. Health concern, food choice motives and attitudes toward healthy eating: The mediating role of food choice motives. *Appetite*, 51: 42-49.
17. Vartanian, L.R., C.P. Herman and J. Polivy, 2007. Consumption stereotypes and impression management: How you are what you eat. *Appetite*, 48: 265-277.
18. Giddens, A., 1984. *The Constitution of Society: Outline of the Theory of Structuration*. Polity Press, Cambridge, England.
19. Priyono, B.H., 2002. *Anthony Giddens: An Introduction*. Kepustakaan Populer Gramedia, Jakarta.
20. Demartoto, A., 2013. Theory of structuration of anthony giddens. <http://argyo.staff.uns.ac.id/2013/02/05/teori-strukturasi-dari-anthony-giddens/>
21. Ekadjati, E.S., 1984. *Sundanese People and their Culture*. PT Girimukti Pustaka, Jakarta.