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Original Research Article

Nutritional knowledge of mothers, children's food consumption, and stunting prevalence: a study of indigenous community in Kasepuhan of Ciptagelar and Sinar Resmi, West Java, Indonesia

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ABSTRACT

Background: The indigenous community of Kasepuhan of Ciptagelar lives in villages that still hold the local traditions firmly. In contrast, the indigenous community of Kasepuhan of Sinar Resmi geographically live in more open villages, so they can easily interact with people from other villages. Culture contributes social values to food consumption and nutritional status.
Methods: This cross-sectional study was conducted on the two indigenous communities from January 2015 until June 2016. The study involved selecting samples using stratified random sampling. The total sample was as many as 200 households.
Results: The study found that 70.3% of mothers in Kasepuhan of Ciptagelar and 48.6% in Kasepuhan of Sinar Resmi have low nutritional knowledge (score <60). The households living in both Kasepuhans had high dietary consumption diversity. However, a household in Ciptagelar had a higher dietary diversity score (6.4±1.4) than in Sinar Resmi (5.7±2.0) (p=0.032). The foods taboo for pregnant mothers were meatballs, Reundeu leaves, durian, pineapple, and Ambon banana. The foods taboo for children under five were meat, chicken feet, chicken tail, chicken liver, chicken gizzard, and seafish. The stunting prevalence of children in Ciptagelar was 44.3%, while Sukaresmi was 22.9%.
Conclusions: Based on those findings, the mother's nutritional knowledge in Kasepuhan of Sinar Resmi was better than in Kasepuhan of Ciptagelar. The diversity of household food consumption in Kasepuhan of Ciptagelar was higher. However, there was a possibility that the nutritional intake of children in Kasepuhan of Ciptagelar was lower. Consequently, the stunting prevalence was higher in Kasepuhan of Ciptagelar than in the Kasepuhan of Sinar Resmi.

Keywords: Food consumption, Indigenous community, Nutrition knowledge, Nutritional status

INTRODUCTION

The indigenous community of Kasepuhan of Ciptagelar live in villages which still hold the local traditions firmly. In contrast, the indigenous community of Kasepuhan of Sinar Resmi geographically live in more open villages, so they can easily interact with people from other villages. The sociocultural and ecological changes will lead to economic changes, particularly in the agricultural and market systems, greatly affecting people's lives. Another change is the utilization of indigenous lands, affecting the food system.

Individuals' food consumption patterns may reflect their nutrition adequacy. Dietary diversity is one's effort to meet nutrition intake, including energy, protein, vitamin, mineral, etc.[1] The more diverse food consumption, the greater their chance to fulfil their nutrition need. There are many factors which affect the dietary pattern. Among

others are sociocultural factors, demography, and lifestyle. Interaction among the various factors will then shape the community's food habits. Regarding this matter, evaluation of the community's dietary pattern can become one of the efforts to describe the food and nutrition condition of the community.[2] A dietary pattern of a community is significantly correlated with the community's food security or food insecurity. If the food security condition is good, the dietary pattern will also tend to be foods of better quality.[3]

Regarding food consumption, the problems faced, among others, are the food consumption level and quality which are still low and the dietary patterns, which are less diverse, mainly because of the decreased purchasing power of the households as a result of poverty. In addition, the income level, which is still low, influences the food choice of good quality very much.[4] The households or community performs various endeavors to provide enough food. The ways performed, among others, are by producing food on their land or purchasing it at the market or stalls available in their surroundings.[5]

The nutrition status of the community, which is reflected in the nutritional status of children under five, is influenced very much by food consumption and health condition. Food consumption, the farthest part of the food system, is closely connected with food distribution, food processing, storage, food preservation, food sources, and supplies. These variables rely very much on food habits which are followed by a community. Food habits are how one/community obtain, selects, and consumes foods available in their environment. Food habits in a community are usually shaped due to the condition of the local society, culture, economy, and ecology.

The people of Kasepuhan of Ciptagelar and Sinar Resmi own specific sociocultural and ecological systems. Both indigenous communities come from the same ancestor and occupy different residential areas. In contrast, the people of Kasepuhan of Ciptagelar live in a more remote area with limited transportation access. The sociocultural and ecological systems which differentiate these two indigenous communities result in food and nutrition security which is also specific and interesting to be investigated. It is expected that the sociocultural and ecological systems applied in the peoples of Kasepuhan of Ciptagelar and Sinar Resmi can be studied as positive features for the food fulfilment of their people. This study focussed on the importance of attention directed to the social changes, food and nutrition systems, and dietary diversity of the indigenous community of Kasepuhan of Ciptagelar and Sinar Resmi.

METHODS

Study design

This research used a cross-sectional study design conducted in the two indigenous communities.

Study place and period

The study was conducted in the two indigenous communities, namely Kasepuhan of Ciptagelar and Kasepuhan of Sinar Resmi, in Sukabumi Regency, West Java Province, from January 2015 until June 2016.

Sampling technique

The study used stratified random sampling. The total population was as many as 227 households with children under five. The samples drawn were 210 households from which the data were taken. After data cleaning, the total samples analyzed were 200 households (88.1% of total population).

Table 1: Distribution of the samples in Kasepuhan of Ciptagelar and Sinar Resmi.

Location	Population (household)	Samples interviewed	Samples analyzed
Kasepuhan of Ciptagelar	188	172	165
Kasepuhan of Sinar Resmi	39	38	35
Total	227	210	200

Inclusion criteria

Households having children under five years old and lived in Kasepuhan of Ciptagelar and Sinar Resmi.

Exclusion criteria

Those who were rejecting to participate in the study.

Data collection

The data was collected by enumerators and an anthropologist. The data were collected through interviews using a set of questionnaires (by enumerators), measurement (by enumerators), and in-depth interviews with the key informants (by an anthropologist). These included social data (age, education, household size), nutritional knowledge, food consumption (food taboo and household dietary diversity score), and nutritional status.

Statistical analysis

Data processing was done first by preparing the file structure in MS Excel format that contains a sheet completed with variables for entering data. The data from the questionnaire was entered into the sheets. Editing and cleaning were done for the data which were already entered. Editing was done to data unsuitable for the data in the questionnaire. Data cleaning was done to the data, which was incomplete and extreme. Of the total 210 households interviewed, as many as 10 were excluded because of incomplete data consumption and

anthropometric measurement, as well as three households due to the extreme data on their nutritional status.

Data analyses include: (1) estimation of elementary statistics (mean, standard deviation for the whole quantitative variables); (2) estimation of proportion for all variables which are categorical or categorized, (3) difference test analysis was used to compare variables. An Independent t-test was used to compare ratio and interval data. Meanwhile, Mann-Whitney was used to compare categorical data.

RESULTS

Characteristics of the study participants

Overall, the average ages of the fathers and mothers in this study were 34.8 years old and 28.2 years old, respectively. When compared, the age of the fathers in Kasepuhan of Ciptagelar was a little bit younger than that of the fathers in Kasepuhan of Sinar Resmi (34.7 years versus 35.3 years). On the other hand, the age of the mothers in Kasepuhan of Ciptagelar was slightly older than that of the mothers in Kasepuhan of Sinar Resmi (28.3 years vs 27.9 years). The ages of the fathers and mothers, when referred to the productive age group was, ranging from 15 years old to 64 years old. It can be said that those ages belonged to the productive ages, so the potential to perform economic activities to improve their households' prosperity was still high.[6]

The education levels of the father and mother are viewed from the length of their education. The research data in Table 3 shows that the average length of education experienced by the fathers and mothers in Kasepuhan of Ciptagelar, 5.7 years and 5.2 years, respectively, was lower than in Kasepuhan of Sinar Resmi, that is, 6.6 years and 6.4 years for the fathers and mothers respectively. If categorized according to the compulsory national learning in Indonesia, both fathers and mothers in both Kasepuhan followed education ≤9 years.

Table 2: Social characteristics of the households.

Socio-economic Characteristics	Ciptagelar (n=165)		Sinar Resmi (n=35)		Total (n=200)	
	Mean	SD	Mean	SD	Mean	SD
Age (year)						
Father	34.7	8.8	35.3	10.5	34.8	9.1
Mother	28.3	6.9	27.9	9.4	28.2	7.4
Length of Education (year)						
Father	5.7	2.4	6.6	2.3	5.8	2.4
Mother	5.2	1.8	6.4	2.7	5.4	2.0
Number of the household size (person)	3.8	0.8	4.6	1.5	3.9	1.0

Table 3: Nutritional knowledge categories.

Nutritional knowledge categories	Ciptagelar (n=165)		Sinar Resmi (n=35)		Total (n=200)	
	N	%	N	%	N	%
Poor (<60)	116	70.3	17	48.6	133	66.5
Moderate (60-80)	46	27.9	15	42.9	61	30.5
Good (>80)	3	1.8	3	8.6	6	3.0
Mean±SD	43.7±19.6[a]		52.3±24.0[b]		45.2±20.6	

Note: Different letters in the same row shows a significant difference ($p<0.05$)

Nutritional knowledge

Nutritional knowledge becomes an important foundation for improving food consumption behaviour. Those with good nutritional knowledge are expected to have good nutrition intakes. However, having good nutritional knowledge sometimes differs from having nutrition intake due to limited access to food or limited income. Respondents' nutritional knowledge in Sinar Resmi was higher than those in Ciptagelar (scores 52.3 versus 43.7). Many respondents have low nutritional knowledge in Ciptagelar 70.3% and Sinar Resmi 48.6%. By using the score of or cut-off point 60 as the limit, considered 'poor', many respondents got scores <60, indicating the people's low nutritional knowledge, particularly in Ciptagelar.

Food consumption

The primary need which every person must fulfil is food, as Maslow's theory places physiological needs (including food) as the first rank of human needs. Rice, as the staple food for most Indonesian people so far, cannot be replaced with other foods of carbohydrate sources.

Table 4: Food taboo.

Food taboo	Reason	
	Ciptagelar	Sinar Resmi
Pregnant women		
Side dishes		
Meatball	Their fetus become big and they get difficulty when delivering their baby	-
Vegetable		
Reundeu leaf	The bone becomes brittle	Afraid the placenta is broken when the baby delivery is on the way
Fruit		
Pineapple	Miscarriage	Miscarriage
	Making the skin itchy	The skin becomes dry
	Their baby may suffer from ulcer	Afraid of suffering from boil
		Their baby may suffer from ulcer
Durian	The fetus feel hot in the womb	-
Ambon banana	-	Slippery
Others		
Fermented cassava/ sticky rice	The baby may die. Miscarriage/weak fetus	-
Soda drink	Affecting the fetus negatively	Affecting the fetus negatively
Energy drink	-	Affecting the fetus negatively
Drug	Affecting the fetus negatively	
Children under five		
Sidedishes		
Meat	Suffereing from Intestinal worms	-
Chicken foot	Handwriting becomes bad.	Handwriting becomes bad
Seafish	Suffering fromintestinal worms and smelling fishy	
Salted fish	-	Becoming an orphan quickly
Chicken tail	-	Becoming an orphan quickly
Chicken liver	-	Not allowed
Chicken gizzard	-	Not allowed
Vegetable		
Male banana flower	-	May cause heart diseases
Male banana flower	-	May cause bad body odour

Table 5: Household dietary diversity score (HDDS) category.

HDDS category	Ciptagelar (n=165)		Sinar Resmi (n=35)		Total (n=200)	
	N	%	N	%	N	%
Lowest dietary diversity (≤5 food groups)	29	17.6	10	28.6	39	19.5
Medium dietary diversity (6-7 food groups)	109	66.1	20	57.1	129	64.5
High dietary diversity (>7 food groups)	27	16.4	5	14.3	32	16.0
Mean±SD	6.4±1.4		5.7±2.0		6.2±1.5	
P value	0.032					

Note: Different letters in the same row shows a significant difference ($p<0.05$)

The foods considered taboo for pregnant mothers in Ciptagelar and Sinar Resmi are relatively similar. The food in a bowl is the meatball, the vegetable is Reundeu leaves, and the fruits are durian, pineapple and Ambon banana. Other foods which are considered taboo are fermented cassava/fermented sticky rice, sticky rice, soda drink, and energy drink. According to some people, meatballs are avoided because meatballs may cause a child/baby to become bigger, and later the mother will face difficulty if she delivers a baby. At the same time, Reundeu leaves are avoided for pregnant mothers in Ciptagelar because they may make the bone brittle. While in Sinar Resmi, the people avoid Reundeu leaves because they are worried that they may make the placenta cord broken.

Table 6: Food group consumed by ≥50% households by dietary diversity.

Kasepuhan	Lowest dietary diversity (≤ 5 food groups)	Medium dietary diversity (6-7 food groups)	High dietary diversity (>7 food groups)
Ciptagelar	1. Cereal	1. Cereal	1. Cereal
	2. Fish and other seafoods	2. Fish and other seafoods	2. Fish and other seafoods
	3. Cooking oil and fat	3. Cooking oil and fat	3. Cooking oil and fat
	4. Cooking spices, spices, and drinks	4. Cooking spices, spices, and drinks	4. Sugar and sweetener
		5. Vegetables	5. Cooking spices, spices, and drinks
		6. Sugar and sweetener	6. Vegetables
			7. Fruit
			8. Egg
			9. Legumes, bean and peanut
Sinar Resmi	1. Cereal	1. Cereal	1. Cereal
	2. Fish and other seafoods	2. Fish and other seafoods	2. Fish and other seafoods
	3. Cooking oil and fat	3. Cooking oil and fat	3. Cooking oil and fat
	4. Cooking spices, spices, and drinks	4. Cooking spices, spices, and drinks	4. Cooking spices, spices, and drinks
		5. Vegetables	5. Vegetables
		6. Sugar and sweetener	6. Sugar and sweetener
			7. Egg
			8. Legumes, beans, and peanuts

Table 7: Distribution of the children under five by nutritional status of height for age Z-score (HAZ).

Category of nutritional status (HAZ)	Ciptagelar		Sinar Resmi		Total	
	N	%	N	%	N	%
Severe stunting (Z score < -3 SD)	31	18.8	3	8.6	34	17.0
Moderate Stunting (-3 SD ≤ Z score < -2 SD)	42	25.5	5	14.3	47	23.5
Normal (Z score ≥ -2 SD)	92	55.8	27	77.1	119	59.5
Total	165	100.0	35	100.0	200	100.0
Mean ± SD	-1.54±2.19[a]		-0.77±1.90[a]		-1.40±2.16	

Note: The same letter in the same row shows a not significant difference (p>0.05)

The food which is considered to be taboo for children is varied. The foods belonging to side dishes considered taboo for children under five in Ciptagelar are meat, chicken feet, and seafish. Consuming meat is considered to cause the children to suffer from intestinal worms, consuming chicken feet makes the children's writing terrible, and consuming seafish makes the children smell fishy. In Sinar Resmi, the taboo foods for children under five are chicken feet, chicken tail, chicken liver, and chicken gizzard. According to the Sinar Resmi people, chicken feet may cause the children's writing to be bad, and salted fish and chicken tails may cause the children's parents to die.

The households that lived in both Kasepuhans had high dietary diversity scores (HDDS). However, a household in Kasepuhan of Ciptagelar had a higher dietary diversity score than Sinar Resmi (p=0.032). This can be seen from the average HDDS of Ciptagelar (6.4±1.4), which is higher than that of Sinar Resmi (5.7±2.0). The proportion of the households which belonged to low dietary diversity in Ciptagelar (17.6%) was a little bit lower than that in Sinar Resmi (28.6%); on the other hand, the households which belonged to a high dietary diversity were greater in Ciptagelar (16.4%) than that in Sinar Resmi (14.3%). For the high diversity group, the food consumption in Kasepuhan of Ciptagelar was dominated by 9 food groups, while in Kasepuhan of Sinar Resmi, it was dominated by 8 food groups. The difference in fruit consumption became the factor that differentiated the consumption diversity in Kasepuhan of Ciptagelar and that in Sinar Resmi. Fruits were consumed more by the household members who lived in Kasepuhan of Ciptagelar.

Nutritional status

The stunting prevalence among children under five was 40.5%, which consists of a severe stunting prevalence of 17% and a moderate stunting prevalence of 23.5%. This stunting prevalence was higher than in Indonesia based on the results of survey status Gizi Indonesia, which was

only 21.6%7. The stunting prevalence among children under five in Ciptagelar (44.3%) was higher than that among the children under five in Sinar Resmi (22.9%).

DISCUSSION

Kasepuhan of Ciptagelar and Kasepuhan of Sinar Resmi are two ethnical communities from one major Kasepuhan, Kasepuhan Cipta Rasa, which preserves their custom and culture. Those two Kasepuhan had undergone the process of getting an insertion into the central government development program. Still, each gave a different response that the social changes that resulted from the development in both are different. Kasepuhan of Sinar Resmi has quite a significant social change compared to Kasepuhan of Ciptagelar. The society's obedience to the custom remains very strong in the lives of people in Kasepuhan Ciptagelar compared to those in Kasepuhan of Sinar Resmi.

People in Ciptagelar thought that working was more important than going to school or considering that their education was enough if they could read and write. In addition, the low education level was also due to the limited facilities and infrastructure and access which supports the teaching and learning activities in those kasepuhan areas. Based on the field observation result, only one elementary school (SD) was in the area of Kasepuhan of Ciptagelar. In contrast, the junior high school (SMP) and senior high school (SMA) existed outside Kasepuhan of Ciptagelar, and it wasn't easy to reach those schools due to the long distance, and the road condition was not good.[8]

Factors that influence food choices include intrinsic factors and extrinsic factors. One of the extrinsic factors that influence food selection is culture.[9] There are foods considered to possess a low social value and a high social value, there are foods suggested to consume, and there are some kinds of foods that are taboo to consume. Each community has developed their way, which is descended continually to look for, to select, to prepare, to serve. And consume the food which is served. Custom and tradition are the bases of community behaviour which is different from one community to another community.

Food taboos are a systematic set of rules about foods or combinations that may not be consumed.[10] Information related to food taboos is usually provided by people who are considered very influential, including grandmothers, experienced parents and mothers. Highly rated and respected members of society play a central role in encouraging people to practice dietary restrictions by spreading information about certain taboo foods.[11] Food taboos are classified into two types, namely permanent prohibitions and temporary prohibitions. Fixed prohibitions refer to types of food that have never been and will never be consumed by a community (individuals, groups of people, or the entire population), such as the prohibition of consuming pork for Muslims or beef for Hindus. The ban cannot be changed (permanent). In contrast, temporary prohibitions are determined by certain people at certain times, such as during pregnancy or illness.[12]

More mothers in Kasepuhan of Ciptagelar worked and had lower nutritional knowledge than those in Kasepuhan of Sinar Resmi. Mothers who work can support their household incomes, but on another side mothers who work have a shorter time to look after their children. The children whose mothers worked had their diet quality lower than those whose mothers did not work.[13] Mother's nutrition knowledge has been shown to improve nutritional status in children under the age of five years.[14] This is because the mothers with good nutritional knowledge gave their children food with more vegetables, fruit, beans, and less sweetened drinks and fast food compared to the mothers with lower nutritional knowledge.[15] The research results show that most mothers of malnourished children do not have an education or have low education. This shows that malnutrition occurs mostly among mothers from the zero or less education group.[16]

The limitation of this study was that the HDDS calculation used the recall method, which has a weakness regarding respondents who have to remember the food consumed 24 hours ago. The sample in Kasepuhan of Sinar Resmi was much smaller than the Kasepuhan of Ciptagelar, so there may be inaccuracies in comparing the two groups in Kasepuhan.

CONCLUSION

Mother's nutritional knowledge in Kasepuhan of Sinar Resmi was better than in Kasepuhan of Cipatgelar because their society is more open to receiving various information from the surrounding community. The diversity of household food consumption in Kasepuhan of Ciptagelar was higher. However, there was a possibility that the nutritional intake of children in Kasepuhan of Ciptagelar was lower. Consequently, the stunting prevalence was higher in Kasepuhan of Ciptagelar than in the Kasepuhan of Sinar Resmi.

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REFERENCES

1. Nguyen PH, Strizich G, Lowe A, Nguyen H, Pham H, Truong T, et al. Food consumption patterns and associated factors among Vietnamese women of reproductive age. Nutr J. 2013;12(1):126.
2. Park SY, Suzanne PM, Lynne RW, Jennifer FY, Sangita S, Jean HH, et al. Dietary patterns using the food guidepyramid groups are associated with sociodemographic and lifestyle factors: the multiethnic cohort study. J Nutr. 2005;135(1):843-9.
3. Leyna GH, Mmnaga EJ, Mnyika KG, Hussain A, Klepp KI. Food insecurity is associated with food consumption patterns and anthropometric measures but not serum micronutrient levels in adults in rural Tanzania. Public Health Nutr. 2010;13(9):1438-44.
4. Damora AS, Anwar F, Heryatno Y. Household food consumption patterns of community forest farmers in West Lampung Regency. J Nutr Food. 2008;3(3):227-32.
5. Khomsan A, Riyadi H, Marliyati SA, Jayanti LD. Food and Nutrition System in Kasepuhan of Ciptagelar West Java. IPB University: Bogor. 2014.
6. Population B, National KB. Being Productive at a Productive Age. Jakarta: Directorate of BKKBN Population and Education Cooperation. 2013.
7. Ministry of Health of Indonesia. Indonesian Nutritional Status Survey. Indonesia: Institute of Health Research and Development. 2022.
8. Jayanti LD. A study of socio-economy and culture, food consumption, and nutrition density on the Ciptagelar Community, West Java. IPB University: Bogor. 2014.
9. Chen PJ, Antonelli M. Conceptual models of food choice: influential factors related to foods, individual differences, and society. Foods. 2020;9(12):1898.
10. Chakona G, Shackleton C. Food taboos and cultural beliefs influence food choice and dietary preferences among pregnant women in the Eastern Cape, South Africa. Nutrients. 2019;11(11):2668.
11. Gebregziabher H, Kahsay A, Berhe K, Gebremariam A. Food taboos and their perceived reasons among pregnant women in Ethiopia: a systematic review. BMC Pregnancy Childbirth. 2023;23(116):1-10.
12. den Hartog AP, van Staveren WA, Brouwer ID. Food habits and consumption in developing countries: manual for field studies. The Netherlands: Wageningen Academic Publishers; 2006.
13. Crepinsek MK, Burstein NR, Abt Associates. Maternal employment and children's nutrition. Economic Research Service; 2004.
14. Mbogori T, Murimi M. Effects of a nutrition education intervention on maternal nutrition knowledge, dietary intake and nutritional status among food insecure households in Kenya. Int J Community Med Public Health. 2019;6(5):1831-7.
15. Yabanci N, Kisac I, Karakus SS. The effects of mother's nutritional knowledge on attitudes and behaviors of children about nutrition. Procedia-Soc Behav Sci. 2014;116(1):4477-81.
16. Agrawal AK, Saarswati S, Mahore R, Saraswar S, Kuity P, Tripathi A. Malnutrition prevailing trend study among under five children of urban slum area of Gwalior city Madhya Pradesh. Int J Community Med Public Health. 2021;8(2):623-9.

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