

Original Article

Analysis study of the use of local food in the era of COVID-19 pandemic in the semiarid islands area of Indonesia

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ABSTRACT

Indonesia has never been separated from the problem of food insecurity due to the gap between the large population and national food availability. People in East Nusa Tenggara generally consume local food (maize, tubers, and beans) as their staple food, although currently there is a tendency for some of the population to consume rice. Province of East Nusa Tenggara with its predominantly dry land farming system has quite high local food potential. The COVID-19 outbreak has the potential to change the world economic order, which is marked by a change in the world trade map, in addition to causing stagnation in various business fields. Nutritional security needs to be built through local food production and consumption as one of the medium- and long-term strategies in dealing with the COVID-19 pandemic. There are several types of local food that exists in East Nusa Tenggara including cereals (maize, rice, sorghum, jali, and barley), tubers (taro, sweet potatoes, and various forest tubers), and various nuts. These local produce has become the main source of nutrition in the local people of East Nusa Tenggara. The aim of this study was to analyze the use of local food in the era of COVID-19 pandemic in the semiarid islands area of Indonesia. This study design used was observational with a cross-sectional design in which the use of local food will be observed using a questionnaire that was carried out during the COVID-19 pandemic. This research was conducted in Kupang City from September to October 2020 by filling out a questionnaire form. The total sample of this study was 150 people. The result of this study indicated that there is no significant difference between the use of local food; such as rice, corn, sorghum, millet, sweet potatoes, and nuts before the COVID-19 pandemic (January–March 2020) and during the COVID-19 pandemic (April–June 2020).

Keywords: Corn, food, local, millet, rice, semiarid, sorghum

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INTRODUCTION

Indonesia has never been separated from the problem of food insecurity due to the gap between the large population and national food availability. Indeed, the recommended food consumption and actual consumption (kcal/capita/day) are only fulfilled by the grains group. However, with the high demand for rice, the government still needs to import rice. Meanwhile, the majority of people in Indonesia only rely on rice as a staple food, thus, this may become the main burden on the government. People in East Nusa Tenggara generally consume local food (maize, tubers, and beans) as their staple food, although currently there is a tendency for some of the population to consume rice. Province of East Nusa Tenggara with its predominantly dry land farming system has quite high local food potential. In 2013, corn production in East Nusa

Tenggara was 707,643 tons of dry shell from the harvested area of 270,394 ha. Compared to 2012, corn production has increased by 12.43%. Cassava production in 2013 was 811,166 tons of wet cassava from the harvested area of 79,164 ha. There was an increase in productivity of 2.55% compared to 2012. In contrast, in the same year, the production of sweet potato was 78,944 tons of wet tubers from the harvested area of 9992 ha. Thus, food shortages (food insecurity) are almost certain should not occur in East Nusa Tenggara because every farming household has a farm that is planted with various types of local food crops in addition to plantation crops and livestock.^[1-4]

Local food is food that is well known, easy to obtain in the area, has various types, and can be cultivated for self-sufficiency or for sale. Local food is a source of carbohydrates, protein, vitamins, and other functionalities that have the potential to substitute the functions of rice and wheat. The existence of

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local food in East Nusa Tenggara as an alternative food as well as in daily food variations, especially the processing of local food into food that is in demand, is still not widely practiced. Local food-based food processing activities at the household and small-scale industry have not been well developed. Most of the farming community still sells fresh ingredients and buys processed products from large industries at relatively higher prices. Province of East Nusa Tenggara is the province with the highest level of per capita corn consumption, namely, 39.21 kg/capita/year. Meanwhile, increasing cassava as an alternative carbohydrate source requires hard work. In East Nusa Tenggara, generally processed products derived from tubers (cassava and sweet potato) are still limited in the form of traditional foods, such as boiled, fried, and baked. Moreover, the processing of maize as a staple food has not varied while the use of maize as flour and various kinds of processed corn flour has not been widely used. The abundance of cassava and sweet potato in NTT also needs to be anticipated. Like corn, cassava, and sweet potato can also be processed into flour so that it is more widely used and can be stored longer. By processing local food into flour, it can provide added economic value and reduce dependence on wheat and rice. The introduction of flour processing technology to farmers will have an impact on increasing the income and welfare.^[5,6]

The COVID-19 outbreak has the potential to change the world economic order, which is marked by a change in the world trade map, in addition to causing stagnation in various business fields. It is certain that global trade performance will be disrupted due to slow improvement in manufacturing performance. In addition to the logistical distribution channels that are also disrupted, the negative impact will hit the Indonesian economy in the future. The economic recovery process is expected to take a longer time. This of course also has an impact on the people in East Nusa Tenggara. Subsequently with the COVID-19 pandemic, the livelihoods of around 1.1 million farmers and agricultural sector actors in the Province of East Nusa Tenggara are thought to have decreased crop yields and income because since the end of March 2019, a number of districts in East Nusa Tenggara have issued village market closure policies. Nutritional security needs to be built through local food production and consumption as one of the medium- and long-term strategies in dealing with the COVID-19 pandemic. There are several types of local food that exists in East Nusa Tenggara including cereals (maize, rice, sorghum, jali, and barley), tubers (taro, sweet potatoes, and various forest tubers), and various nuts. These local produce has become the main source of nutrition in the local people of East Nusa Tenggara.^[7,8]

METHODS

This study design used was observational with a cross-sectional design in which the use of local food will be observed using a questionnaire that was carried out during the COVID-19

pandemic. This research was conducted in Kupang City from September to October 2020 by filling out a questionnaire form. The total sample of this study was 150 people.

The study conducted by the distribution of informed consent and questionnaires to all subjects accordingly. Data retrieval can be done face to face and still pay attention to health protocols and can be done through media such as email, WhatsApp, and other reliable electronic media with guaranteed data confidentiality.

RESULTS AND DISCUSSION

Respondents' Socioeconomic Characteristics

Age of respondent

Respondents were aged between 20 years and 80 years. Most of the respondents (62.67%) were spread between the ages of 21 and 40 years. Only a small proportion of respondents was young adults and the elderly.

Education level of respondents

The education level of the respondent is based on the educational background completed. The education level of the respondents ranged from not graduating from elementary school to tertiary education. The study shows that most of the respondents who are scattered in the semiarid islands (78.67%) have graduated from high school and tertiary education. Meanwhile, a small proportion of others has no education and has a low level of education, namely, graduating from elementary to junior high school.

Type of occupation of the respondent

Several respondents have adequate jobs, starting from employees (14.67%), civil servants (18%), and self-employed (25%). This is related to where the respondent's job will affect family's income. Most of the respondents are categorized as non-poor. Therefore, a good adequate job can have an effect in increasing income, by choosing and buying quality and varied food in sufficient quantities. However, most of the respondents who do not work may be housewives. The profession of housewives allows respondents to allocate time to pay attention to consumption and availability as well as the health of their families and household members to be greater. Another occupation found in the respondent is a farmer. Being a farmer also allows the respondent to obtain local food with an estimate of whether it is planted by themselves or obtained by labor or obtained in the forest and so on. This allows respondents to maintain food security at the household level.

The Source of Local Food

Table 1 indicates that almost all respondents have a high interest in local food procurement. This can be seen from all respondents who obtain local food by planting themselves and also buying. In line with education and employment, those who

have jobs as farmers or housewives can grow their own local food sources, while those who have education and good jobs can buy these sources of food.

Local Food Consumption

As shown in Table 2, there was no significant change in consuming local food in respondents before the pandemic or during the COVID-19 pandemic. This means that in their daily life, the respondents are accustomed to consuming local food like other foods. This is an expected condition where the availability of local food in East Nusa Tenggara is quite plentiful and can be grown and processed easily. This is in line with the fairly good education and job, which raises a high awareness of the respondents of the importance of consuming local food for various reasons such as habits, cultural traditions, health, or other interests.

Rice consumption pattern

Tables 2 and 3 show that people’s interest and dependence on rice consumption were still very high both before and during the COVID pandemic 19.

Table 1: Distribution of respondents by method of obtaining local food for family consumption

	Sum	Percentage
Purchase	70	46.67
Own field products	70	46.67
Others	10	6.67
Sum	150	100

Table 2: Distribution of respondents according to local food consumption patterns

	Local food consumption pattern			
	Before COVID-19 (January–March 2020)		During COVID-19 (April–June 2020)	
	Sum	Percentage	Sum	Percentage
High	108	72.00	104	69.33
Low	42	28.00	46	30.67
Sum	150	100	150	100

Table 3: Distribution of respondents according to rice consumption patterns

	Rice consumption pattern			
	Before COVID-19 (January–March 2020)		During COVID-19 (April–June 2020)	
	Sum	Percentage	Sum	Percentage
High	149	99.33	140	93.33
Low	1	0.67	10	6.67
Sum	150	100	150	100

Corn consumption pattern

As shown in Tables 3 and 4, the respondents are more interested in rice as a staple food. This can be seen from the low consumption of corn. It can due to maize as local food is not available in every season in various regions. There are only a few areas in East Nusa Tenggara that provide maize every season, such as in Kupang district and its surroundings. This is also related to the low rainy season in East Nusa Tenggara; thus, farmers are very dependent on rain to plant corn. Another might also because people still prefer to plant rice instead of corn. The same thing also happened to local food types of sorghum and millet [Tables 4 and 5]. This may be related to the availability of sorghum which is very rare in various regions.

Sorghum consumption patterns

The local food types of sorghum and millet [Tables 5 and 6] are the least favorite. This may be related to the availability of sorghum which is very rare in various regions. At present, sorghum [Table 5] is sufficiently available in the East Flores region, and even then, it is available only in certain seasons.^[9]

Millet consumption patterns

Millet is indeed related to the availability of land or markets where it is rare and not evenly available in various regions in East Nusa Tenggara [Table 6]. This is related in ways to farm this type of food, which may be quite difficult because it is still available in the forest and has not been used as a plant in general.^[10]

Sweet potatoes consumption pattern

Table 7 shows that the data before the COVID-19 pandemic, the people of East Nusa Tenggara were used to consuming it,

Table 4: Distribution of respondents according to corn consumption pattern

	Corn consumption pattern			
	Before COVID-19 (January–March 2020)		During COVID-19 (April–June 2020)	
	Sum	Percentage	Sum	Percentage
High	71	47.33	73	48.67
Low	79	52.67	77	51.33
Sum	150	100	150	100

Table 5: Distribution of respondents based on sorghum consumption patterns

	Sorghum consumption pattern			
	Before COVID-19 (January–March 2020)		During COVID-19 (April–June 2020)	
	Sum	Percentage	Sum	Percentage
High	8	5.33	8	5.33
Low	142	94.67	142	94.67
Sum	150	100	150	100

Table 6: Distribution of respondents based on millet consumption patterns

	Millet consumption pattern			
	Before COVID-19 (January–March 2020)		During COVID-19 (April–June 2020)	
	Sum	Percentage	Sum	Percentage
High	8	5.33	9	6.00
Low	142	94.67	141	94.00
Sum	150	100	150	100

Table 7: Distribution of respondents based on sweet potatoes consumption pattern

	Sweet potatoes consumption pattern			
	Before COVID-19 (January–March 2020)		During COVID-19 (April–June 2020)	
	Sum	Percentage	Sum	Percentage
High	51	34.00	59	39.33
Low	99	66.00	91	60.67
Sum	150	100	150	100

Table 8: Distribution of respondents based on patterns of consumption of nuts

	Nuts consumption pattern			
	Before COVID-19 (January–March 2020)		During COVID-19 (April–June 2020)	
	Sum	Percentage	Sum	Percentage
High	38	25.33	43	28.67
Low	112	74.67	107	71.33
Sum	150	100	150	100

and during the pandemic, they also continued to consume sweet potatoes. This is a relatively good condition considering the availability of rice which is quite difficult during the pandemic thus local food are an alternative without having to depend on rice.^[11]

Nuts consumption patterns

In Table 8, it can be seen that even before the COVID-19 pandemic, people in East Nusa Tenggara already been using nuts products in their daily life food. Indeed, nuts and beans can be served as a dish in the family to be able to maintain adequate and balanced nutrition.

CONCLUSION

There is no significant difference between the use of local food before the COVID-19 pandemic (January–March 2020) and during the COVID-19 pandemic (April–June 2020).

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CONFLICTS OF INTEREST

There are no conflicts of interest found during this study.

ETHICS

This study has received ethical approval from the Health Research Ethics Commission of the Faculty of Medicine, University of Nusa Cendana.

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