PROCEEDING
3rd International Conference of Health Polytechnic of Jambi 2024
icon@poltekkesjambi.ac.id
http://journal.poltekkesjambi.ac.id/index.php/ICoHPJ
doi.org/10.35910/icohpj.v3i0

ASSOCIATION BETWEEN DIETARY DIVERSITY AND DIETARY PATTERNS IN CHILDREN (6-59 MONTHS) IN LOMBOK TENGAH

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ABSTRACT

Background: Inadequate intake among children under five years has both long term and immediate negative health impact, and lifelong consequences including increased risk of disease, poor cognitive development, lower school performance and increased risk of death in childhood, reduce productivity. This study evaluated household dietary diversity (HDD) as a determinant of nutritional status of children.
Method: An analytical cross-sectional study involving 359 mothers-child pairs aged 6-59 month was conducted in Lombok Tengah. Socio demographic, dietary and anthropometric data were collected in face-to-face interviews. HDD scores were calculated using data from 24-h dietary recall among children. Anthropometric indices (stunting, wasting and underweight) were defined as anthropometric z-scores < - 2 standard deviations using WHO growth standards.
Result: We evaluated dietary diversity using 10-food-group-based child/individual dietary diversity (IDDS) and found a mean (SD) IDDS of 4.3 (1.7). The prevalence rates of stunting, wasting and underweight in the children were 30.9%, 9.0 %, 20.2% respectively, while 32.1% of the household had less dietary diversity. The most diverse pattern 58.3% had high consumption of grains, eggs, vegetables and fish. Diverse pattern less than 20% consumption of meat, poultry and dairy milk. Dietary patterns that were associated with energy intake and gender and we found that males were more likely to have a less diverse dietary pattern than females.
Conclusion: High prevalence of stunting in children and many households consumed less diverse diet in Lombok Tengah. Despite variation for some children, dietary diversity was relatively low for children. Intervention and supporting the need to improve child growth and overall diet of children in Lombok Tengah

Keywords: Dietary diversity; Dietary pattern; Children

INTRODUCTION

Healthy dietary practices necessitate that people eat from all food categories because no single food category has all the essential elements (Labadarios et al., 2011). Dietary diversity is a useful substitute indicator of family food security and nutritional adequacy, according to the research that is currently available (Kennedy et al., 2010; Leonard K et al., 2020; Hussein FM et al., 2017; Sarkar S, 2014).

Food security is achieved when all individuals have constant physical and financial access to sufficient amounts of wholesome food that meet their dietary requirements and preferences and allow them to lead active, healthy lives (Burchi et al., 2016). Food security is primarily composed of three factors: utilization, accessibility, and availability.

Availability: An appropriate supply of food is readily available (Shaw DJ, 1996). Food can be grown domestically, bought commercially, or received via food assistance (Gursoy S., 2020).

Accessibility: having enough money or other resources to buy, gather, produce, or otherwise obtain enough appropriate food for one's needs. Food may be accessible, but it is not for people who do not have enough land to grow it or the money to buy it (Busch L., 2021). Utilization: Sufficient knowledge and application of nutrition and

child care principles, appropriate food processing and storage practices, and an adequate supply of health and sanitation services guarantee that food is used appropriately (WFP, 2019). Utilization also refers to how food is distributed among household members according to each person's nutritional needs. Usage also includes biological use, which is connected to an individual's health (Busch L, 2021).

According to Mbwana et al. (2016), the technique of calculating a household's HDDS involves counting the food types that members of the household have ingested over a given time frame, often 24 hours. According to studies by Vaitla B et al. (2017) and Amugsi D A et al. (2016), households in poor nations are most likely to have low dietary diversity. According to the Food and Agriculture Organization (FAO, 2001), food insecurity is the condition in which people do not have the material or financial access to enough safe, nourishing food to lead active, healthy lives. Applying this notion at the family level leads to household food insecurity (FAO, 2009).

Nutrient adequacy and a high dietary diversity score are associated. Sufficient intake of nutrients is necessary for human body maintenance, growth, strength, physical exertion, immunity, and cognitive function (Habte TY, & Krawinkel M, 2016). In addition to depression and anxiety, poor dietary diversity has been linked to an increased risk of chronic diseases like obesity, diabetes, and cardiovascular disease (Lawal KM & Katsina KP, 2020). According to Murray CJL et al. (2020), one of the main causes of disease and death worldwide is a poor diet.

The purpose of this study is to ascertain the degree of food insecurity, dietary patterns and diversity, and factors linked to food security and dietary diversity in children aged 6–59 months residing in Lombok Tengah.

METHODS

A cross-sectional study with an analytical population focus was carried out in homes located in Lombok Tengah, West Nusa Tenggara, Indonesia. 359 households took part in the study, which involved the random selection of households. The Health Polytechnic of Mataram's Institutional Ethics Committee gave its clearance for this study (LB.01.03/6/115/2023).

In order to measure the effects of development food aid programs on the access component of household food insecurity, the household Food Insecurity Access Scale (HFIAS) was used to assess food security. To gauge the prevalence of food security, the comprehensive 9-question HFIAS scale is employed. By counting the amount of food groups that a particular target group consumed the day before or the night before, the Individual Dietary Diversity Score (IDDS) evaluated diet diversity among the population. The 24-hour recall was obtained from every respondent in order to administer the IDDS. To evaluate the relationship between exposure and outcome variables, Chi-square analysis was employed, and frequencies and percentages were computed for categorical variables.

RESULTS AND DISCUSSION

According to Coates et al. (2007) and Castell et al. (2018), the HFIAS score for every home was determined by adding the codes of responses to the topic of occurrence. Merely food insecure, moderately food insecure, severely food insecure, and food secure are the categories into which the scores have been divided. Four weeks (30 days) before data collection, this score assesses the level of food insecurity (access) in the home. The level of food insecurity (access) in the household four weeks (30 days) before data collection is measured by this score. The score is between 0 and 27, where 0 denotes a home

that answered "no" to each and every occurrence question and 27 denotes a household that answered "often" to each of the nine frequency of occurrence questions. The household suffered greater food insecurity (access) the higher the score. A household's level of food insecurity (access) decreased with a lower score (Coates et al., 2007).

As can be observed in Fig. 1, a majority of the agricultural households surveyed (96.7%) are facing varying degrees of food insecurity. 87.5% of food insecure households are slightly insecure, followed by highly insecure households (8.4%) and severely insecure households (0.8%). In Lorestan province, Iran's Dowreh Chegeni county had nearly as many food-secure agricultural households (40.8%) as Lesotho (40%), with 13.4% of households facing mild food insecurity, 14.4% moderate food insecurity, and 31.4% severe food insecurity (Chegini RK et al., 2021).

Table 1 data show that the highest percentage of households experiencing mild food insecurity is found in Batukliang Utara (97.6%), followed by Jonggat (92.9%), Praya Tengah (92.8%), and Kopang (91.0%). A household's consumption of food types during a specific time period is indicated by the HDDS. Seven days before the poll, food consumption data was used to calculate the score. It is based on twelve food groups: cereals, veggies high in vitamin A, legumes, fish and shellfish, eggs, green leafy vegetables, other vegetables, roots and tubers, vitamin A-rich fruits, other fruits, organ meat, flesh meats, sugar and sweets, oils, and fats.

Table 1. Mean household food insecurity access score for different district of health centre in Lombok Tengah

Area	n	Frequency			
		Food secure	Mildly food insecure	Moderately food insecure	Severely food insecure
Praya Timur	52	1.9	82.7	13.5	1.9
Praya Tengah	56	1.8	92.8	5.4	0
Pujut	51	3.9	82.3	11.8	2.0
Kopang	56	3.6	91.0	5.4	0
Batukliang Utara	41	2.4	97.6	0	0
Jonggat	56	7.1	92.9	0	0
Praya Barat Daya	47	2.1	72.3	23.5	2.1
Total	359				

It's a measure of the variety of food groups that people have eaten. Improved economic access to food is indicated by a higher score, which also reflects a wider range of food categories consumed. Das Shufo et al., 2022; Walsh et al., 2020; Sambo et al., 2022).

Table 2. Mean household dietary diversity score for different district of health centre in Lombok Tengah

Area	n	Mean	Std. Deviation	F Statistic
Praya Timur	52	4.32	1.20	
Praya Tengah	56	4.49	1.36	
Pujut	51	4.41	1.82	
Kopang	56	4.80	1.90	6.24***
Batukliang Utara	41	4.83	1.46	
Jonggat	56	4.57	1.97	
Praya Barat Daya	47	3.92	1.15	
Total	359			

Table II reveals that Praya Barat Daya got the lowest score (3.92) and Kopang (4.80) had the greatest score (4.83). This suggests that, compared to the other areas, residents in the foothills (Batukliang Utara) have greater access to varied food, while Praya Barat Daya has the least. There is statistically significant variation in HDDS between districts ($p = 0.004$).

Food access is therefore improved for households that grow commercially and live in the foothills. Their purchasing power is increased by the income from commercial farming, increasing their chances of having access to a wider range of foods (Saifuddin SNM et al., 2022; Otekunrin, 2021). Food availability is improved if households save some produce for domestic use (Sibhatu KT et al., 2015).

CONCLUSION

According to the data, 87.5% of agricultural households have some degree of food insecurity. According to the HFIAS results, households engaged in subsistence farming and living in the highlands (Batukliang Utara) are more susceptible to food insecurity. With the lowest results for dietary diversity, households in the highlands that did not cultivate their own food for the market had less diverse diets. However, the

average daily dietary diversity among farming households was insufficient, as they had generally consumed a variety of cuisines during the previous seven days (mean = 4.72).

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