

Relationships of Food Consumption and Infectious Diseases with Nutritional Status of Under-Five Children at Ngletih Community Health Center of Kediri City

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ABSTRACT

Parents should pay attention to the quality and quantity of food consumed by their children by making their children accustomed to daily balanced and regular diet in accordance with nutritional adequacy level. Food consumption and infectious diseases are factors directly influencing Under-Five Children's Nutritional Status. Incidence of frequent and serious infections would influence food consumption of under-five children, thus affecting their nutritional status and vice versa. The purpose of the present study was to determine the relationships of food consumption and infectious diseases with nutritional status of Under-Five Children at Ngletih Community Health Center of Kediri City. This study used an observational design with a retrospective approach and employed an accidental sampling technique. Population was all of under-five children at Ngletih Community Health Center of Kediri City. Sample was parents of under-five children visiting Ngletih Community Health Center of Kediri City. Independent variables were food consumption and infectious diseases. Dependent variable was nutritional status of under-five children. Data were collected by using questionnaires and statistically tested by using Ordinal Regression tests. Results indicated that, of 57 respondents, 17 respondents had poor food with an under nutrition status. Seventeen respondents had good food consumption with a good nutritional status. Nineteen respondents had infectious diseases with an under nutrition status. Fifteen respondents had non-infectious diseases with a good nutritional status. Ordinal Regression tests showed a value of 0.000 at a significance level of $\alpha=0.005$. Poor food consumption would make under-five children susceptible to illness and infectious diseases that could influence their nutritional status and vice versa.

KEYWORDS: Food consumption, infectious diseases, nutritional status under-five children.

INTRODUCTION

Under-five children are a group of individuals most vulnerable to health and nutritional disruptions due to their immature status of immunity, diet and psychology. Additionally, they are at the early stage of development and their survival as well as life quality highly depends on adults' population, primarily mothers or parents. Child health problems in Indonesia are characterized by the high incidence of diseases and nutritional disorders accompanied by physical and social environmental conditions that have not been optimal in supporting health [1]

A study conducted showed that infectious diseases could negatively affect the immune system of under-five children since infectious diseases could decrease appetite that might lead to decreased food consumption. In fact, nutritional needs of children during increase. A study conducted in 2011 at Sepatan Community Health Center of Sepatan Sub-district, Tangerang Regency showed that 14 (13.1%) under-five children with good food consumption developed infectious diseases and 93 (86.9%) under-five children with poor food consumption developed infectious diseases.

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According to (Basic Health Research) (Balita Bangkes, [2]) nutritional problems among under-five children in Indonesia was quite significant, either malnutrition, under nutrition or over nutrition. These conditions were also accompanied by diarrhea, pneumonia, and meningitis/encephalitis with a proportion of 31.4%, 23.4% and 9.3%, respectively

According to the [3] there were 10.3% of under-five children with under nutrition and 2.3% of under-five children with malnutrition. This figure decreased only 0.7% from 11% according to the [2] for East Java Province, whereas that for 2010 was 15.2%. This showed that nutritional problems in East Java did not improve significantly; there is a need for enhanced nutritional management and research in East Java Province [3]

The Health Office of Kediri City, consisting of 9 community health centers, in September 2013 showed that there were 122 (0.9%) under-five children with malnutrition, 644 (3.7%) with under nutrition, 113.178 (94.1%) with good nutrition and 187 (1.3%) with over nutrition [3].

Data from Ngletih Community Health Center of Kediri City showed that the number of under-five children with undernutrition status in 2011 was 102 (9.9%), which decreased to 97 (9.7%) in 2012 and 88 (10.1%) in 2013 [3]

Undernutrition is directly caused by poor food consumption and the presence of infectious diseases. The older the children, the more their food consumption. Family food consumption is influenced by the quantity and type of foods purchased, cooking methods, distribution in the family and individual eating habit. Food consumption also depends on income, religion, customs and education of the family [4]

RESEARCH DESIGN

This study was an analytic-correlational one. Population was all the 976 under-five children at Ngletih Community Health Center of Kediri City. A sample of 57 respondents was taken by using accidental sampling technique.

Instruments used to measure food consumption was FFQ (Food Frequency Questionnaire), questionnaires for infectious diseases and a scale for nutritional status by body weight/age

Data was processed by editing, coding, scoring and tabulating. Data was analyzed by using an ordinal regression analysis and a computer to assess the relationships of food consumption and infectious disease with nutritional status of under-five children.

RESULTS AND DISCUSSION

Of 57 respondents, 23 (40.0%) had good food consumption with a good nutritional status. Seventeen respondents (29.0%) had poor food consumption with an undernutrition status and 2 respondents (4%) with a malnutrition status. Additionally, 24 (41.0%) respondents had infectious diseases with an under nutrition status; 2 (4%) respondents had a malnutrition status and 10 (17.0%) had no infectious disease with a good nutritional status.

Table 1. Cross-Tabulation of Food Consumption with Nutritional Status of Under-five Children

Nutritional Status	Food Consumption				Total	
	Good		Poor		N	%
	N	%	N	%		
Malnutrition	0	0	2	4.0	2	4.0
Under nutrition	9	16.0	17	29.0	26	45.0
Good Nutrition	23	40.0	6	11.0	29	51.0
Over nutrition	0	0	0	0	0	
Total	32	56.0	25	44.0		
Chi-square = 11.645; sig = 0.001						

Source: Results of Data Analysis

Table 2. Cross-Tabulation of Infectious Diseases with Nutritional Status of Under-five Children

Nutritional Status	Infectious Diseases				Total	
	Yes		No		N	%
	N	%	N	%		
Malnutrition	2	4.0	0	0	5	4.0
Undernutrition	24	41.0	2	4.0	23	45.0

Good Nutrition	19	34.0	10	17.0	5	51.0.0
Over nutrition	0	0	0	0	24	0
Total	45	79.0	12	21.0	20	100
Chi-square = 6.635; sig = 0.010						

Source: Results of Data Analysis

Table 3. Results of Ordinal Regression Tests of Food Consumption with Nutritional Status of Under-five Children at Ngletih Community Health Center of Kediri City

Model	-2 Log Likelihood	Chi-Square	df	Sig
Intercept Only	24.660			
Final	13.015	11.645	1	.001

Source: Results of Data Analysis

Table 4. Results of Ordinal Regression Test of Infectious Diseases with Nutritional Status of Under-five Children at Ngletih Community Health Center of Kediri City

Model	-2 Log Likelihood	Chi-Square	df	Sig
Intercept Only	16.419			
Final	9.780	6.635	1	.010

Source: Results of Data Analysis

Table 5. Results of Ordinal Regression Test of Food Consumption and Infectious Diseases with Nutritional Status of Under-five Children at Ngletih Community Health Center of Kediri City

Model	-2 Log Likelihood	Chi-Square	df	Sig
Intercept Only	35.016			
Final	17.70	17.309	2	.000

Source: Results of Data Analysis

Table 4.23 indicates a sig. value of 0.001. Since a sig. value of 0.001 < 0.05, then there was a relationship between food consumption and nutritional status of under-five children at Ngletih Community Health Center of Kediri City. Table 2 shows a sig. value of 0.010. Since a sig. value of 0.010 < 0.05, then there was a relationship between infectious diseases and nutritional status of under-five children in Ngletih Community Health Center of Kediri City. Table 3 indicates a sig. value of 0.000. Since a sig. value of 0.000 < 0.05, then there was a relationship between food consumption and infectious diseases with nutritional status of under-five children in Ngletih Community Health Center of Kediri City. Ordinal Regression test indicates a value of 0.000.

DISCUSSION

Results indicated that, of 57 respondents, 17 (33.0%) had poor Food Consumption with an undernutrition status; 17 (33.0%) had good Food Consumption with good Nutritional Status. In addition, 19 (37.0%) respondents had Infectious Diseases with an Undernutrition Status; 15 (29%) had no Infectious Disease with a good Nutritional Status.

According to [5] undernutrition among under-five children is caused by several factors, which are then classified into direct causes, indirect causes, core of the problem and root of the problem.

Undernutrition is directly caused by poor food consumption and the presence of infectious diseases. The older the children, the more their food consumption. Family food consumption is influenced by the quantity and type of foods purchased, cooking methods, distribution in the family and individual eating habit. Food consumption also depends on income, religion, customs and education of the family [4].

Undernutrition is also caused by good food consumption but with frequent diarrhea or fever, eventually leading to undernutrition. In contrast, children with poor food consumption will have a weakened immune system, making them vulnerable to infectious diseases, loss of appetite and eventually undernutrition. Thus, there is an interplay between poor food consumption and infections [4].

Undernutrition is not only caused by underconsumption of food but also that of diseases. Children with good food consumption but with frequent diarrhea or fever may suffer from undernutrition. Similarly, children with poor food consumption will have a weakened immune system and will be susceptible to diseases. In fact, both foods and diseases constitute the causes of

undernutrition [6] Food consumption in the family is influenced by the amount and types of food purchased, cooking methods, distribution in the family and individual eating habit. Food consumption also depends on income, religion, custom, and education of the family [4]

According to [7] relationships between undernutrition and infectious diseases depend on the magnitude of impact arising from a number of infections on nutritional status itself. Some examples of how infections may contribute to undernutrition are gastrointestinal infections may cause diarrhea, HIV/AIDS, tuberculosis and some other chronic infectious diseases may cause anemia and intestinal parasites may cause anemia. Infectious diseases are caused by poor sanitation and hygiene, inadequate basic health services and inadequate parenting [6].

Infectious diseases may lead to undernutrition and, reversely, undernutrition will further compromise the immune system, which in turn can make children more susceptible to infectious diseases. Infectious diseases, most commonly causing nutritional disorders and vice versa, are acute respiratory tract infections (RTIs), but primarily tuberculosis and diarrhea. Thus, there is an interplay between poor food consumption and infections.

Children with good food consumption but with frequent diarrhea or fever may suffer from undernutrition. Similarly, children with poor food consumption will have a weakened immune system and will be susceptible to infections, leading to loss of appetite and eventually under nutrition [8]

The level and quality of food consumption of the members of poor household members do not meet the required nutritional adequacy. Inadequate food intake of household members, including their under-five children, make them more susceptible to infections, leading frequent illness. Generally, amount and types of food consumed tend to improve with the increasing income. However, the quality of foods does not necessarily improve when it is applied to cash crops. Cash crops are replacing food production for households and the income earned from the cash crops or other revenue-raising efforts are not earmarked for purchasing foods or foodstuffs of high nutritional quality [9]

Ordinal Regression tests by using SPSS 18 indicated a sig. value of 0.000 or <0.05 . Thus, H_0 was rejected and H_1 was accepted. Hence, there was a relationship of Food Consumption and Infectious Diseases with Nutritional Status of under-five children in Ngletih Community Health Center of Kediri City. This result was not much different from that of Mrican Community Health Center of Kediri City as the control group, in which the Ordinal Regression test showed a sig. value of 0.006. It demonstrated that Food Consumption and Infectious Diseases strongly influenced Nutritional Status of under-five children.

CONCLUSIONS AND RECOMMENDATIONS

Of 57 respondents at Ngleti Community Health Center of Kediri City, 45 had good food consumption and 45 with infectious diseases. There were 29 respondents with good nutritional status. Results of Ordinal Regression test by using SPSS 18 showed a p value of 0.000, or <0.05 . Thus, there was a relationship of food consumption and infectious diseases with nutritional status of under-five children at Ngleti Community Health Center of Kediri City.

Parents with under-five children are expected to recognize that food consumption and infectious diseases are among those influencing nutritional status of under-five children. Thus, parents should pay more attention to and change their children's lifestyle of poor food consumption and frequently acquiring infectious diseases.

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