

Original Article

Family Function and Nutritional Status among under-Five Children: A Cross-Sectional Study among Extended Family in Panti Public Health Center, Jember Regency of Indonesia

Alfin Nura Febrianti, BNS

Undergraduate of Nursing Program, Faculty of Nursing, University of Jember

Tantut Susanto, MN, RN, PHN, PhD

Department of Community, Family and Geriatric Nursing, Faculty of Nursing, University of Jember

Hanny Rasni, MN, RN

Department of Community, Family and Geriatric Nursing, Faculty of Nursing, University of Jember

Correspondence: Tantut Susanto, MN, RN, PHN, PhD, Department of Community, Family and Geriatric Nursing, Faculty of Nursing, University of Jember, Jl Kalimantan 37 Jember, Jawa Timur, Indonesia 68121, E-mail: tantut_s.psik@unej.ac.id

Abstract

Background: A large number of family members affect family functions to fulfill their requirement of needs, especially nutrition for their children. Meanwhile, the implementation of family functions is needed for monitoring the nutritional status of under-five children.

Aim: The aimed of this study want to identify the relationship of family function and nutritional status among under-five children for extended family in Panti Public Health Center of Jember regency, Indonesia.

Methods: A cross-sectional study was conducted among 195 extended families using consecutive sampling. A self-administered questionnaire was used to measure the socio-demographic of caregivers or family members and they're under-five children, while the Family Assessment Device (FAD) Questionnaire was used to perform the family function among the extended family setting. Standing of baby scale and microtoise were used to measure the body weight and body length of the under-five children, respectively. A Chi-square test was used to answer the objective of the study.

Results: The result showed that the FAD score was 59% of high family function and 61.5% of under-five children was a good nutritional status. There was a significant

relationship between the family function and nutritional status of under-five children in the extended family setting ($\chi^2=6.034$; $p\text{-value}=0.014$), in which the extended family with a high family function value has 2.217 times for a chance to have a good under-five children nutritional status (OR = 2.217; 95% CI = 1.213-4.052).

Conclusions: Family is one of the indirect factors that can influence the nutritional status of under-five children. Families must actively participate in monitoring the nutritional status of under-five children. Therefore, the implementation of the family function in the extended family setting should be optimized to improve the nutritional status among under-five children.

Keywords: Extended Family, Family Function, Nutritional Status of Under-five Children

Introduction

Based on the results of the Indonesia Basic Health Survey in 2018, it is known that around 30.8% of toddler in Indonesia experience stunting (Kementerian Kesehatan RI, 2018). This number has not been able to reach the achievement target of

Sustainable Development Goals (SDGs) for the second sustainable development that is ending all forms of malnutrition in 2030 (Susanto et al., 2019). Lack of fulfillment of toddler's nutrition can be influenced by family factors (family type, socio-economic status) (Utami et al., 2019). Children from underprivileged family members usually live with

other relatives in extended family members so that the child's needs can be fulfilled (Cross, 2018). Every family has a function that is very necessary to improve the components in it so that all processes that occur in it can run well, including in fulfilling the nutritional status of toddler⁵. This research will analyze the relationship of family functions and nutritional status among under-five children for extended family in Panti Public Health Center, Jember Regency, Indonesia.

Methods

This study was used a cross-sectional approach (December 2019 - January 2020) in the Panti Public Health Center, Jember Regency, Indonesia. The population in this study were families with under-five children, based on data obtained from the Panti Public Health Center. The total population of children under five was 4,607. The sample of this study is the type of extended family that has under-five children. Based on the results of calculations that include the population size ($N = 4607$), the level of significance of meaning ($Z_{1-\alpha / 2} = 1.96$), the absolute error rate (0.1), the sample size in this study was 680 toddlers. Based on the screening process, out of 680 children under five were identified: 8 families refused to be respondents; 10 participants were not at the study site; 58 toddlers have passed the Posyandu; 12 families moved residence; 35 toddlers have a history of Low Birth Weight; 300 toddlers live with a nuclear family, so the total sample is 257 families. The final sample size in this study was determined using consecutive sampling technique, which is 195 large families with under-five children. This study was used research criteria that include inclusion criteria: 1) Toddlers aged 1-5 years (first toddlers) who live in one house with or without parents in a multigenerational family; 2) Large families with a minimum of three generations in one house, such as grandparents, children, and grandchildren. The exclusion criteria in this study were: 1) Respondents stated their unavailability; 2) During the data collection process, the respondent was not at the location; 3) Toddlers whose names are not recorded at the Public Health Center or large family types that are not recorded in the District; 4) Toddlers are sick or have comorbidities from birth or low birth weight. This study uses respondents' characteristics questionnaire that contains data on the identity of parents (age, gender, religion, address, marital status, ethnicity, number of family

members, occupation, last education, and monthly income) as well as toddler characteristics (name, age, type sex, weight, and height). The measurement of the independent variable (family function) uses the McMaster Family Assessment Device (FAD) questionnaire, while to measure the dependent variable (nutritional status of toddlers) uses a standing weight measurement tool and asleep weight measurement tool and then the researcher calculates the toddler anthropometric value using the AnthroPlus software. The measurement results are then classified using standard standards from the Ministry of Health of the Republic of Indonesia based on body weight according to age (WAZ) so that it can be divided into four categories, namely poor nutrition, less nutrition, good nutrition, and over nutrition. Researchers assisted by a research team (12 students) in the data collection process. Researchers met with midwives and Public Health Center Panti staff who had data related to infants and cadres of each Posyandu, then the researchers visited cadres of each Posyandu to find out the characteristics of toddlers' families, and asked for names and addresses of extended families who have toddlers to research by home visits. Participant questionnaires were filled out using Google forms with the assistance of researchers. This study was declared ethical by the Health Research Ethics Commission (KEPK) of the Faculty of Dentistry, the University of Jember with Number 662 / UN25.8 / KEPK / DL / 2019. The researcher also obtained formal permission from each participant in the form of written permission listed on the informed consent. The data obtained then entered into Microsoft Excel 2010, then analyzed using SPSS 20. Categorical data types in this study are presented in the form of percentages, while numeric data types with normal data distribution are presented in the form of mean and standard deviation if the abnormal data distribution is presented in the form of median and percentiles. The relationship or relationship between family function variables and the nutritional status of children under five using the Chi-square statistical test with a significance level ($p < 0.05$).

Results

Table 1 showed that the sample were 195 extended families with under-five children (1-5 years) in the Panti Public Health Center. Family characteristics in Table 1. It is known that parents of toddlers have

a middle-age value of 28 years, while toddlers have an average age of 34 months. The majority of parents who were respondents were female (87.7%) and the majority were mothers of under-five children (83.6%), while the majority of the sexes of under-five children who were respondents were male (54.9%). The number of family members who live in the same house has a middle value of 5. The most recent level of education of parents is graduated from junior high school/equivalent (31.8%) and most do not work or act as housewives (75.9%) with total family income each month at most (35.4%) of Rp 500,000 - Rp 1,000,000. The majority of the families participating are from the Madurese (49.7%). Toddler's weight has an average value of 12 kg, while toddler height has an average value of 88 cm. Table 2 showed that family functions can be categorized into three based on the total score obtained, namely $x < 63$ (low family function), $x = 63 < x < 126$ (medium family function), and $x > 126$ (high family function). Based on the results of this study it can be seen that the proportion of the value a family function an extended family in the Work Area of the Panti Public Health Center, Jember Regency consists of categories namely medium family function and high family function which can be seen in Figure 1. The indicators of nutritional status of under-five children are anthropometric Z-score (BB / U) which can be seen in Table 3. that indicators of nutritional status of children under five are normally distributed (p -value = 0.186), so it can be concluded that toddlers in the Work Area of the Panti District have a good nutritional status category. This can be seen from the Z-score of 1.090. Table 3 described that nutritional status of children under five based on anthropometric Z-score (BB / U) can be categorized into four, namely: poor nutrition (< -3 elementary school), less nutrition (-3 elementary to < -2 elementary school), good nutrition (-2 elementary to 2 elementary school), and over nutrition (> 2 elementary school). The proportion of nutritional status of children under five in this study is presented in Figure 2. Bivariate analysis in this study used the Chi-square test. This test uses a 2×2 table where the results are obtained from the merging between cells. The nutritional status of toddlers who originally had 4 categories: poor, less, good, and over combined into 2 categories, namely poor experiencing difficulties, and the family has rules that are applied to the family by accordance with the norms in force around the family residence (Turliuc et al., 2016).

nutrition and good nutrition. Family functions consisted of 3 categories, namely high, medium, and low, in the results of this study only found 2 categories of family functions, namely high family functions and moderate family functions. In Table 4. it is known that there are differences in results between family function and nutritional status of under-five children so that it can be concluded that there is a relationship between family function and nutritional status of under-five children extended family type in the Work Area of Panti Public Health Center, Jember Regency, Indonesia which is shown from the results ($X^2 = 6.034$; p -value = 0.014). Large families or extended families with high family function scores have 2.217 times the opportunity to have a good toddler nutritional status (OR = 2.217; 95% CI = 1.213-4.052).

Discussion

This research conducted 195 extended families in the Panti Public Health Center Work Area in Jember Regency. The results showed that participants had varied family functions, namely moderate function and high family function (p -value = 0.018) with most families having a high family function score (59%), this showed that most families were already good at carrying out the family function. The results of this study are in line with previous research which shows that the implementation of good family functions has a significant relationship with the Body Mass Index (BMI) of children who are obese. Child feeding can be influenced by the implementation of family functions, so families need to carry out family functions properly so that children have a normal body mass index (Hanifah et al., 2016). The implementation of family functions can be assessed based on six main dimensions of family life consisting of problem-solving, communication, roles, affective responsiveness, affective involvement, and behavioral control (Cyril et al., 2016). Based on the results of this study found varied answers of participants, participants said that the family did not experience difficulties in solving problems in the family, each member was able to carry out their respective roles and communicate or express opinions well in every decision made. The family was able to show affective responses and show affection by being involved in helping family members who are

Table 1. Socio-demographic Characteristics of Participants (n=195)

Characteristic	Categories	Parents n (%)	Toddler n (%)
Age	Md (P ₂₅ -P ₇₅), Mean \pm SD	28 (24-34) year	34.15 \pm 13.112 month
Gender	Male	24 (12.3)	107 (54.9)
	Female	171 (87.7)	88 (45.1)
Relationship with Toddlers	Mother	163 (83.6)	
	Father	12 (6.2)	
	Grandmother	19 (9.7)	
	Grandfather	1 (0.5)	
Number of Family Members	Md (P ₂₅ -P ₇₅)	5 (5-6)	
Last Education	No School	12 (6.2)	
	Elementary School	57 (29.2)	
	Junior High School	62 (31.8)	
	Senior High School	59 (30.3)	
	Bachelor's	5 (2.6)	
Profession	Does not work	148 (75.9)	
	Farmers	17 (8.7)	
	Entrepreneur	13 (6.7)	
	Employee	6 (3.1)	
	Government employees	2 (1.0)	
	Others	9 (4.6)	
Family Income	< Rp 500.000,00	22 (11.3)	
	Rp 50.000 - 1.000.000,00	69 (35.4)	
	Rp 1.00.000 - 1.500.000,00	65 (33.3)	
	Rp 1.500.000 - 2.000.000,00	30 (15.4)	
	> Rp 2.000.000,00	9 (4.6)	
Ethnic	Javanese	58 (29.7)	
	Madurese	97 (49.7)	
	Using (Javanese - Madurese)	1 (0.5)	
	Others	38 (19.5)	
	Others	1 (0.5)	
Toddler Weight (Kg)	Mean \pm SD		11.9 \pm 3.09
Toddler Body Height (Cm)	Mean \pm SD		87.9 \pm 10.7

Description: f (%) = Number of participants (percentage); Md = median; P₂₅-P₇₅ = percentile 25-75; Mean: Average; SD: Standard Deviation

Table 2. Family Function Indicators for Extended Family (n = 195)

Family Function Indicator	Md (P ₂₅ – P ₂₇)	Z	p-value
Problem Solving	16 (15-18)	2,688	<0,001
Communication	17 (16-18)	2,255	<0,001
Role	20 (19-22)	2,547	<0,001
Affective Responsiveness	9 (8-11)	1,888	0,002
Affective Involvement	16 (13-18)	1,575	0,014
Behavioral Control	21 (20-24)	2,137	<0,001
General Function	28 (27-31)	2,163	<0,001

Total Family Function Score	127 (122-139)	1,531	0,018
-----------------------------	---------------	-------	-------

Description: Md = median; P25-P75 = percentile 25-75; Z = Calculated value Kolmogorov - Smirnov Test; Z = Kolmogorov Smirnov Test Calculate Value; p-value = Significant with Kolmogorov-Smirnov Test

Figure 1. Extended Family Function

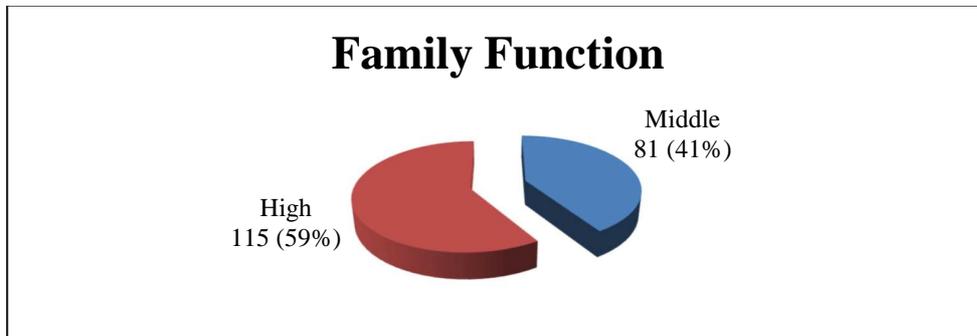


Table 3. Indicators of Toddler Nutrition Status in Extended Family (n = 195)

Toddler Nutrition Status Indicator	Mean	SD	Z	p-value
Z-Score	-1.3077	1.60995	1.090	0.186

Description: Mean: Average; SD: Standard Deviation; Z = Calculated value Kolmogorov - Smirnov Test; Z = Kolmogorov Smirnov Test Calculate Value; p-value = Significant with Kolmogorov-Smirnov Test

Figure 2. Toddler Nutrition Status

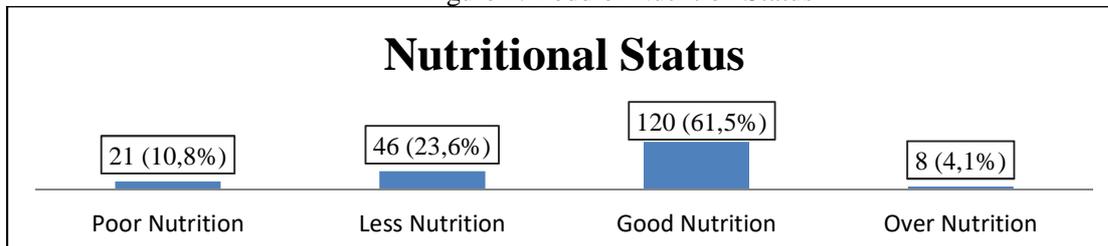


Table 4. Relationship between Family Function and Toddler Nutrition Status in Extended Family Family

Family Function	Toddler Nutrition		χ^2 (p-value)	OR	95% CI Min-Max
	Poor n (%)	Good n (%)			
Medium	36 (45)	44 (55)	6,034		1,213-4,052
High	31 (27)	84 (73)	(0,014)	2,217	

Description: n% = number of respondents (percentage); χ^2 = Pearson Chi-Square; OR = Odds Ratio 95% CI = 95 Confidence Interval

The evaluation of the implementation of the family function still has one more indicator, namely the general function. This indicator is used to assess whether there are disturbances in the implementation of the six other family function indicators (Milier et al., 2000). The family stated that they did not have obstacles in carrying out family functions in each of its indicators so that if the family was able to carry out general function indicators, it showed that the family could carry out family functions optimally. In this study it can be seen that the majority of under-five children who live with extended family types have good nutritional status (61.5%), this is in line with a statement that states that extended family type families are superior in terms of meeting all household needs. Families with a low economy tend to choose to live together by combining the resources of several family members and are committed to each other to be able to finance all needs and ensure the fulfillment of the needs of each family member, including in ensuring the fulfillment of the necessary nutrients in the first five years of a child's life (Cross et al., 2018). The nutritional status of under-five children can be influenced by family characteristics variables, namely the mother's knowledge which is associated with the mother's education level, this is related to the mother's ability to understand knowledge. Knowledge about nutrition can later influence the consumption of food in toddlers which affects the nutritional status of toddlers (Purwanti et al., 2017). Based on the results of the study found that the majority of children under five who have good nutritional status (33.3%) the last level of education of mothers is graduated from junior high school/equivalent. The mother's education level is not very influential, it can be caused by technological advances, even though she does not have the last high education level currently, mothers can find out knowledge about food consumption to maintain the nutritional status of children by looking for information using

available technology and getting information from health workers when mothers routinely bring toddlers to Posyandu (Susanto et al., 2017). Family characteristics such as a large number of family members in one house can also be related to the nutritional status of toddlers. One of the virtues of extended family type is that having several family members in one house will affect the amount of family support obtained (Kim et al., 2016). In this study, it can be seen that toddlers who have good nutritional status (88.3%) live with 3-5 family members at home. Respondents stated that each family could carry out their respective roles well, including in looking after toddlers. Grandparents do not mind taking part in taking care of their grandchildren when their parents are not at home, this is due to the high awareness of each family member to meet the needs of each family member so that parents who are working toddlers can meet family needs and the needs of toddlers are not overlooked because grandparents are also actively involved in helping to pay attention to the feeding of toddlers when their parents are not at home (Susanto et al., 2020; Susanto et al, 2021a). The extended family type also needs to ensure that the food needs of each family member must be divided evenly, including in toddler. A large number of family members can affect the nutritional status of under-five children because if more family members live in the house but are not accompanied by an even distribution of food, it can later cause toddlers who live in the house to have less nutritional status (Hartono et al., 2017). The results showed that at most toddlers with good nutritional status (38.3%), the average monthly family income was Rp 1,000,000-Rp 1,500,000. Respondents stated that with this income the family had no difficulty in meeting the needs of each family member, including in terms of equal distribution of food, and the family could manage expenses every month by the income earned so that the needs of each family member remained fulfilled without ignoring the nutritional status of toddlers and

toddlers have good nutritional status. The final results of this study indicate that family function is related to the nutritional status of under-five children in extended family type as evidenced by the Chi-square test (p -value = 0.014). The results of this study are in line with previous studies, which also showed a significant relationship between family function and nutritional status of under-five children, in that study found that families with high family function values showed the good nutritional status of children, while families with low family function values indicated poor nutritional status (Gumawang, 2016). Based on these results, it can be seen about the importance of families to optimize the implementation of family functions, especially in extended family types to help improve the welfare of each family member, including fulfilling the nutritional status of toddlers (Ainy et al., 2021).

Conclusions: The function of the family in the extended family type majority has a high family function category, most of the toddlers living with large families have good nutritional status. There is a relationship between the family function with the nutritional status of under-five children an extended family type in the Working Area of Panti Panti Public Health Center, Jember Regency, Indonesia. Large families with high family function scores have a 2 times greater chance of having a toddler with good nutritional status. A large family that can carry out family functions well will find it easier to meet the nutritional status of toddlers by the age of the toddler (Susanto et al., 2021b).

Acknowledgments: I would like to acknowledge entire the Family and Health Care Studies Research Group Team from the Department of Community, Faculty of Nursing, University of Jember. Mr. Siswoyo and Mrs. Rita as officers of the Panti Public Health Center Jember, Indonesia.

References

- Ainy, F.N., Susanto, T., Susumaningrum, L.A. (2021). The relationship between environmental sanitation of family and stunting among under-five children: A cross-sectional study in the public health center of Jember, Indonesia. *Nursing Practice Today*: 8(3), 173–178.
- Cross, C. J. (2018). Extended Family Households among Children in The United States: Differences by Race / Ethnicity and Socio-Economic Status. *Population Studies*. 72(2):235–251.
- Cyril, S., Halliday, J., Green, J., dan Renzaho, A. M. N. (2016). Relationship between Body Mass Index and Family Functioning, Family Communication, Family Type and Parenting Style among African Migrant Parents and Children In Victoria, Australia: A Parent-Child Dyad Study. *BMC Public Health*. 16(1):1–10.
- Gumawang, Z. A. (2016). The Relationship between Family Function and Child Nutritional Status of Students at SD Negeri 5 Boyolali. Publication manuscript.
- Hanifah, U. A., Arisanti, N., Agustian, D., and Hilmanto, D. (2016). The Relationship between Family Function and Nutritional Status of Children in Soreang District, Bandung Regency in Year . 2:200–206.
- Hartono., Widjanarko, B., and EM, M. S. (2017). Relationship between Nutrition Aware Family Behavior (Kadarzi) and Clean and Healthy Life Behavior (PHBS) in Household Arrangements with the Nutritional Status of Toddlers Age 24-59 months. Indonesian Ministry of Health. (20186). The Situation of Stunting Toddlers Main Outcomes of Riskesdas. Jakarta. Available from: <https://doi.org/10.1016/j.enfcli.2019.04.093>
- Kim, J., Spangler, T. L., and Gutter, M. S. (2016). Extended Families: Support, Socialization, And Stress. *Family and Consumer Sciences Research Journal*. 45(1):104–118.
- Miller, I. W., Ryan, C. E., Keitner, G. I., Bishop, D. S., dan Epstein, N. B. (2000). The McMaster Approach to Families : Theory, Assessment, Treatment and Research. 168–189.
- Purwanti, R., Wati, E. K., (2017). and Rahardjo. Family Characteristics Associated with Nutritional Status of Toddlers Age 6-59 Months. *Indonesian Journal of Nutrition*. 5(1):50.
- Susanto, T., Yunanto, R. A., Rasny, H., Susumaningrum, L. S., dan Nur, K. R. M. (2019). Promoting Children Growth And Development : A Community-Based Cluster Randomized Controlled Trial In Rural Areas Of Indonesia. *Jurnal Public Health Nursing*. 2019, March;514-524.
- Susanto, T., Rasni, H., Susumaningrum, L.A., Yunanto, R.A., Septiyono, E.A. (2020).. Caring for Adolescents Based on the Wisdom of Indonesian Pandalungan Culture: An Ethnonursing Pilot Study. *Journal of Pediatric Nursing*; 55, pp. e270-e278
- Susanto, T., Yunanto, R.A., Susumaningrum, L.A., Rasni, H. (2021a). Determination Of Maternal And Child Health Status In Relation To Nutritional Status And Development Of Children During Lactation: A Cross-Sectional Study Between Mothers With 0 – 6 Months Children In Rural Agricultural Areas Of Indonesia. *MJPHM*; 21(2), 61–74.
- Susanto, T., Rasni, H., Susumaningrum, L.A. (2021b). Prevalence of malnutrition and stunting among under-five children: A cross-sectional study family of quality of life in agricultural areas of Indonesia. *Mediterranean Journal of Nutrition and Metabolism*, 14(2), pp. 147–161
- Turliuc, M. N., Alexandru, U., Cuza, I., Ciudin, M., da Robu, V. (2016). Psychometric Properties of a Short Version of The Family Assessment Device. *Rom. J. Exp. Appl. Psychol.*. 7(3):1–17.
- Utami, R. A., A. (2019). Setiawan, dan P. Fitriyani. Identifying Causal Risk Factors For Stunting In Children Under Five Years Of Age In South Jakarta, Indonesia. *Enfermeria Clinica*. (xx):6–11.