CAREGIVER FEEDING STYLE IN MAGELANG AND WONOSOBO DISTRICTS

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Abstract. Parents influence their children's eating behaviors through the food they prepare and how they interact with them. This article aimed to identify caregiver feeding style and their relationship with the maternal and children characteristics in children under two years. The cross-sectional study was conducted in Magelang and Wonosobo Districts, Indonesia. Respondents were 362 mothers with children aged 12-24 months. Variables in this study were caregiver feeding style, child characteristics (age, gender, birth order), and maternal characteristics (age, education, occupation, parity, and family economic status). Data analyses used were the Chi-square test and logistic regression. Mothers with a high school education or higher contributed 14% of the research participants. Working and non-working mothers are nearly equal. As many as 50% of mothers were under the age of 20. Quintile 4 contributes the smallest percentage (18.23%). The authoritative and indulgent caregiver feeding styles were nearly identical (52.21% and 47.79%). The child's age and mother's employment status were related to parent-child feeding with p=0.005 and p=0.015, respectively. Older child age is a protective factor for indulgent style (adjusted odds ratio (aOR) = 0.53; 95% confidence interval (CI): 0.340-0.815, p=0.004), and working mothers have a higher risk for indulgent style (aOR = 1.72; 95% CI: 1.123-1.623, p=0.012). The feeding style was the more authoritative type. The feeding style of children under two years old is related to the child's age and the status of the working mother.

Keywords: feeding style, under two years children

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INTRODUCTION

Paying attention to the nutritional status of children under two years of age is crucial because it is an opportunity for the remaining time to improve and perfect their mental and motor development (Kartono *et al*, 2008). In the fetal period and the first two years of life, the brain is in the most vulnerable period during a critical period of development because it is a period of rapid brain growth (Beard, 1995). Several factors that influence the growth and development of children in the early period of life include exclusive breastfeeding, adequate complementary feeding, stimulation, a safe environment, and care. These factors support optimal physical, mental, social, and cognitive development and prevent negative effects on children's health (Pem, 2015).

Undernutrition is estimated to be associated with 2.7 million child deaths, or about 45% of child deaths. Infant and young child feeding is one of the keys to increasing child survival and promoting child growth and development (WHO, 2021). Furthermore, World Health Organization (WHO) has also issued recommendations for feeding infants and young children (6-23 months), including continuing breastfeeding, the introduction of food for infants six months in the form of solid, semi-solid, and soft foods, appropriate food diversity, appropriate frequency of meals, safe preparation of foods, and feeding infants in response to their cues (WHO, n.d.).

The process of child feeding requires stimulation and good nurturing, and caregivers must be responsive to instructions that children give and be able to motivate children to want to eat (Pem, 2015). Black and Aboud (2011) suggested that responsive feeding is also included in the responsive parent. Indeed poor complementary feeding has been identified as a risk factor associated directly with stunting (Bhutta *et al*, 2013).

The increase in children aged six months to two years experiencing stunting shows that children in Indonesia are not benefiting from good feeding practices and appropriate complementary foods (UNICEF, 2020). More than 40% of infants were introduced to complementary foods too early,

40% of children aged 6-24 months did not have a sufficiently diverse diet, and 28% were not fed frequently enough (UNICEF, 2020).

Wonosobo and Magelang Regencies are replete areas of iodine deficiency endemic, susceptible to growth and development disorders, including health problems (Nurcahyani *et al*, 2019; Yunitawati and Latifah, 2020). Several studies related to the parents' feeding style have been carried out. Previous studies showed inconsistencies in maternal feeding style reported in both regions. A study in Wonosobo shows that most mothers showed an authoritarian style, with high demandingness and low responsiveness (Ashar *et al*, 2021). Other research on feeding in Magelang showed that 87.5% of mothers apply an authoritative style, with high demandingness and high responsiveness (Anggono and Nurrahima, 2015). Meanwhile, other research shows a problem with the quality of complementary feeding by mothers to children under two in the Magelang area. Latifah and Riyanto (2022) found that 85% of homemade complementary foods is low in diversity and related to the high prevalence of anemia among children under two in Magelang.

Parents' eating habits and parenting strategies are essential determinants of children's eating behavior and food choices, especially in early childhood (Scaglioni *et al*, 2018). Parents influence their children's eating habits by providing food and interacting with them. However, previous research in replete endemic iodine deficiency disorder areas had not explored factors related to specific caregiver feeding styles. This study aimed to explore caregiver feeding styles and determine the factors associated with children under two years old feeding style.

MATERIALS AND METHODS

Study design

This article focuses on the caregiver feeding style in children. This cross-sectional study was conducted in Magelang and Wonosobo Regencies, Central Java, Indonesia. The data analyzed are parts of a study that examined

the determinants of stunting in children under two years old which was conducted in 2014 (Ihsan, 2014). The total number of studied subjects in this study is 362 mothers. Inclusion criteria are mothers living in Magelang and Wonosobo Regencies who have children aged under 2 years old.

Data collection

The variables in this study include caregiver feeding style measured by the Caregiver's Style Feeding Questionnaire (CSFQ) (Hughes *et al*, 2005). CFSQ contains 19 questions, each question has five answer choices: never, rarely, sometimes, often, and always. The CFSQ measurement shows reliability related to the level of demandingness and responsiveness of the mother or caregiver to the child during the feeding process. The results of the CFSQ measurement can be categorized into four styles: authoritarian, authoritative, permissive, and uninvolved (Hughes *et al*, 2012; Wondafrash *et al*, 2012). CFSQ has been shown to have good validity and reliability (Ozturk and Yildiz, 2018; Tami *et al*, 2015). Characteristics of children include age, gender, and birth order. Maternal characteristics include age, education, occupation, parity, and family socioeconomic status. Socioeconomic status was obtained based on ownership of household goods which were then composited into an ownership index variable. The ownership index is divided into five quintiles: quintile 1 (poorest), quintile 2 (poorer), quintile 3 (middle), quintile 4 (richer), quintile 5 (richest). The variables were obtained through a questionnaire that was asked of the mother.

Data analysis

Data analysis was performed with Chi-square to determine the relationship between eating patterns and characteristics of mothers and children. In addition, a logistic regression test analyzed the relationship between variations in caregiver feeding style with the maternal and children characteristics. All data analyses were performed using Statistical Package for Social Sciences (SPSS) version 21 (IBM, Armonk, NY).

Ethical consideration

The research has been approved by the Ethics Committee of the National Institute of Health Research and Development, Indonesian Health Ministry, Number: LB.02.01/5.2/K5.403/2014.

RESULTS

From Table 1, almost half of the respondents (47.51%) have graduated from elementary school. The percentage of working and non-working mothers is nearly the same. There are 9.12% of mothers aged >35 years. For family economic status, the percentage of each quintile is almost the same; Quintile 1 is 20.17% and Quintile 5 is 20.44%. Authoritative feeding style status is 52.21%. A total of 61.88% are children aged 12-18 months. Boys are slightly more than girls (55.25%), and 47% are the first child.

Table 1
Descriptive characteristics of respondents (N = 362)

Variables	Frequency, *n* (%)*
Mother's education	
Senior high school graduate and above	51 (14.09)
Junior high school graduate	125 (34.53)
Elementary school graduate	172 (47.51)
Not finish elementary school- no school	14 (3.87)
Mother's job	
Not working	179 (49.45)
Working	183 (50.55)
Parity	
Primipara	174 (48.07)
Multipara	188 (51.93)
Mother's age in years, mean ± SD	26.41 ± 6.45

Table 1 (cont)

Variables	Frequency, *n* (%)*
Mother's age group	
20-35 years	148 (40.88)
<20 years	181 (50.00)
>35 years	33 (9.12)
Economic status	
Quintile 1	73 (20.17)
Quintile 2	76 (20.99)
Quintile 3	73 (20.17)
Quintile 4	66 (18.23)
Quintile 5	74 (20.44)
Feeding style	
Authoritative	189 (52.21)
Indulgent	173 (47.79)
Child age in month, mean ± SD	17.18 ± 3.43
Child age group	
12-18 months	224 (61.88)
19-24 months	138 (38.12)
Child's gender	
Male	200 (55.25)
Female	162 (44.75)
Birth order	
1st child	170 (47.09)
2nd child	142 (39.33)
3rd child	36 (9.97)
4th child and later	13 (3.60)

*Unless otherwise stated
SD: standard deviation

Based on the bivariable analysis between the maternal-children characteristics and parent-child feeding style (Table 2), the related variables are the child's age and the mother's employment status. The feeding style showed no significant difference between the child's sex, birth order, maternal education level, parity, maternal age, and family economic status.

The results of the logistic regression analysis of the relationship between mother-children characteristics and feeding style are shown in Table 3. As a reference, the chosen category was authoritative style. Model 1 analyzes all variables related to feeding style. Model 2 analyzes variables that have significant value to feeding style. The variables included in Model 2 are those with *p*-value of less than 0.05. The logistic regression results in Model 2 showed that the child's age was related to the feeding pattern of food received. Older children (19-24 months) had a 0.53 times risk of receiving indulgent style (95% CI: 0.340-0.815, p=0.004).

Table 2
Relationship between maternal and children characteristics with feeding style

Variable	Feeding style, *n* (%)		*p*-value*
	Authoritative (N = 189)	Indulgent (N = 173)	
Mother's education			0.957
Senior high school graduate and above	27 (14.29)	24 (13.87)	
Junior high school graduate	63 (33.33)	62 (35.84)	
Elementary school graduate	92 (46.68)	80 (46.24)	
Not finish elementary school- no school	7 (3.70)	7 (4.05)	
Mother's job			0.015
Not working	105 (55.56)	74 (42.77)	
Working	84 (44.44)	99 (57.23)	
Parity			0.859
Primipara	90 (47.62)	84 (48.55)	
Multipara	99 (52.38)	89 (51.45)	

Table 2 (cont)

Variable	Feeding style, *n* (%)		*p*-value*
	Authoritative (N = 189)	Indulgent (N = 173)	
Mother's age group			0.367
20-35 years	71 (37.57)	77 (44.51)	
<20 years	101 (53.44)	80 (46.24)	
>35 years	17 (8.99)	16 (9.25)	
Family economic status			0.215
Quintile 1	33 (17.46)	40 (23.12)	
Quintile 2	39 (20.63)	37 (21.39)	
Quintile 3	43 (22.75)	30 (17.34)	
Quintile 4	40 (21.16)	26 (15.03)	
Quintile 5	34 (17.99)	40 (23.12)	
Child's age			0.005
12-18 months	104 (55.03)	120 (69.36)	
19-24 months	85 (44.97)	53 (30.64)	
Childs's gender			0.738
Male	106 (56.08)	94 (54.34)	
Female	83 (43.92)	79 (45.66)	
Birth order			0.052
1st child	88 (46.81)	82 (47.40)	
2nd child	79 (42.02)	63 (36.42)	
3rd child	19 (10.11)	17 (9.83)	
4th child and later	2 (1.06)	11 (6.36)	

*Significant at $p<0.05$

Table 3

Result of logistic regression test between maternal and children characteristics with the feeding style

Variable	Model 1		Model 2	
	aOR (95% CI)	*p*-value	aOR (95% CI)	*p*-value
Maternal education				
Senior high school graduate and above	(Reference)		-	-
Junior high school graduate	1.204 (0.598-2.423)	0.602	-	-
Elementary school graduate	0.831 (0.417-1.656)	0.599	-	-
Not finish elementary school - no school	0.512 (0.130-2.015)	0.338	-	-
Mother's job				
Not working	(Reference)		(Reference)	
Working	1.829 (1.155-2.896)	0.010*	1.720 (1.128-2.623)	0.012*
Parity				
Primipara	(Reference)		-	-
Multipara	0.507 (0.125-2.055)	0.125	-	-
Maternal age				
20-35 years	(Reference)		-	-
<20 years	0.496 (0.254-0.965)	0.039	-	-
>35 years	0.742 (0.321-1.718)	0.487	-	-

Table 3 (cont)

Variable	Model 1		Model 2	
	aOR (95% CI)	*p*-value	aOR (95% CI)	*p*-value
Family economic status				
Quintile 1	(Reference)			
Quintile 2	0.880 (0.444-1.747)	0.716		
Quintile 3	0.582 (0.289-1.172)	0.130		
Quintile 4	0.528 (0.259-1.075)	0.078	-	-
Quintile 5	0.949 (0.476-1.893)	0.883	-	-
Child's age				
12-18 months	(Reference)		(Reference)	
19-24 months	0.539 (0.601-1.471)	0.008*	0.527 (0.340-0.815)	0.004*
Child's gender				
Male	(Reference)		-	-
Female	0.940 (0.601-1.471)	0.788	-	-
Birth order				
1st child	(Reference)		-	-
2nd child	0.957 (0.225-4.072)	0.952	-	-
3rd child	1.132 (0.247-5.179)	0.873	-	-
4th child and above	8.576 (0.962-76.443)	0.054	-	-

aOR: adjusted odds ratio; CI: confidence interval
*Significant at $p<0.05$

In addition, status as a working mother increased the risk of indulgent style (OR = 1.72; 95% CI: 1.13-2.62, p=0.012).

DISCUSSION

Parenting style is a general behavioral construction based on the emotional relationship between parents and children. There are two dimensions in parenting: demandingness (how much control parents do) and responsiveness (warmth and acceptance in responding to children's needs). According to this definition, there are four types of parenting styles, namely, authoritative, authoritarian, indulgent, and uninvolved. The authoritative style has a high level of demands and rules with an increased response from children. Authoritarian style is related to high demands but low responsiveness, characterized by rules but has little effect on children's needs. An indulgent style is associated with low demands and high responsiveness with few rules but high involvement with children's needs. The uninvolved style is associated with low demands and responsiveness (Shloim *et al*, 2015).

A literature review of articles on feeding practice in children aged six months and older in Indonesia reveals that child feeding practices are not constantly optimal (Blaney *et al*, 2015). Feeding and nurturing are interrelated processes. This process will shape the eating environment, which is then related to genetic factors that will affect the development of subsequent eating patterns and other health outcomes. Parents sometimes misinterpret their child's eating behavior and respond with unresponsive feeding practices that harm the child's eating preferences (Daniels, 2019).

The pattern of caregiver feeding from the analysis shows that the respondents have almost the same type between authoritative and indulgent (52.21% and 47.79%). The uninvolved style is included in the nonresponsive feeding style (low demanding and low responsiveness). In this style, parents tend to let their children decide what to eat and how much they eat. Parents or caregivers communicate little verbally to children when the feeding process occurs. Physical assistance is also minimal when the child eats (Harbron and Booley, 2013).

Older child age is a protective factor for indulgent parenting (aOR = 0.53; 95% CI: 0.340-0.815, p=0.004). Regarding the age factor, another study stated that the child's age was associated with minimum dietary diversity (MDD); children aged 18-23 months have a 5.7 times higher probability of getting MDD compared to children aged 6-12 months, whereas children aged 6-11 months are the dominant factor affecting MDD in children aged 6-24 months who are breastfed (Aprilya Sirait and Achadi, 2020).

Maternal education is not related to parent-child feeding style. This result is not in line with another study that state that feeding style is influenced by maternal education, which has implications for the child's diet and adiposity (Saxton *et al*, 2009). Research in the Madura region has similar results to this study showing that education is not related to feeding style in children under five. The most influential variable studied is a lifestyle (Yuarnistira *et al*, 2019).

Working mothers have a higher risk for indulgent style (aOR = 1.72; 95% CI: 1.123-1.623, p=0.012). The assumption underlying this finding is that working mothers do not have time to pay attention to their children's diets, so there is a tendency to provide food based on the child's request and food that is convenient and quick to serve. Children's favorite foods are often dominated by instant or fast food. Concerning MDD, children of working mothers have a better chance to consume more diverse foods than mothers who do not work. This condition is also related to the economic status of the family (Aprilya Sirait and Achadi, 2020). Several studies have found that feeding style differs in mothers of various socioeconomic levels. Mothers with lower social-economic status tend to be authoritarian or permissive (Clark *et al*, 2008; Feinberg *et al*, 2008; Saxton *et al*, 2009).

This study did not assess the specific outcomes of parent-child feeding. However, a large body of literature has linked the relationship between feeding style and child growth and development. Therefore, the results of this study also depend on the mother's answer.

In summary, the feeding style that is mainly done is authoritative. The parent-child feeding style of children under two years old is related to the child's age and the working mother's status. Younger children and children of working mothers are at risk of getting indulgent eating care.

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CONFLICT OF INTEREST DISCLOSURE

The authors declare that they have no competing interests.

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