



The relationship between parental feeding styles and the nutritional status of toddlers among working mothers in Yogyakarta

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ARTICLE INFO

Article history

Received : July 11, 2024

Revised : August 23, 2024

Accepted : August 30, 2024

Keywords:

Nutritional status;

Parental feeding;

Toddlers;

Working mothers

ABSTRACT

The increasing number of mothers working outside the home represents a significant social and economic change. The rise in women's workforce participation has notably impacted family dynamics, particularly influencing working mothers' feeding styles on child development and nutritional status. This study aims to determine the relationship between parental feeding style and toddler's nutritional status among working mothers. This is an observational analytic study with a cross-sectional design. The target population includes all working mothers with toddlers in the Yogyakarta Special Region. Samples were purposively selected, comprising 211 mother-toddler pairs. Data were collected through self-administered online and offline questionnaires on respondent characteristics and feeding styles using the Caregiver Feeding Style Questionnaire. Toddler nutritional status data were measured using weight-for-age (W/A), height-for-age (H/A), and weight-for-height (W/H) indices, obtained through direct measurements of weight and height. The Spearman rank correlation test was used to evaluate the relationship between feeding style and children's nutritional status. There was a significant negative correlation between the responsive aspect of parenting feeding style and the nutritional status on the H/A index, $r_s(210) = -0.17$, $p = .014$. However, no significant correlations were found between the demanding aspect of feeding style and the nutritional status on the W/A, H/A, and W/H indices ($r_s(210) = -0.03$, $p = .662$; $r_s(210) = -0.07$, $p = .322$; $r_s(210) = -0.08$, $p = .226$, respectively). Similarly, the responsive aspect of parenting style was not significantly correlated with the nutritional status on the W/A and W/H indices ($r_s(210) = 0.01$, $p = .947$; $r_s(210) = -0.11$, $p = .115$, respectively). In conclusion, a relationship was found between responsive parenting feeding style and nutritional status on the H/A index. However, no significant relationships were observed between demanding feeding style and nutritional status on the W/A, H/A, and W/H indices, or between responsive style and the W/A and W/H indices. Public health interventions should focus on promoting responsive feeding styles among working mothers to improve child nutritional outcomes.

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1. Introduction

In recent decades, rapid social and economic changes have changed the family structure in many countries, including Indonesia. The increase in the number of mothers working out of the house is one of the significant changes. Yogyakarta, a city famous for its cultural diversity and high education, is no exception. Nowadays, mothers do not only take care of the house or only take care of children,



but they also have activities outside the home with the aim of earning a living. If the mother works, the responsibility of the child is left to the childminder or other family members, the person entrusted to take care of the child does not necessarily have the experience and skills to take care of the child. In such a situation, children under five will become neglected because they do not get enough care and attention from their caregivers and the recommended food intake is not fulfilled. Daily food consumption patterns will affect body weight as an illustration of the nutritional status of children under five [1].

Good nutritional status is one of the important factors in achieving optimal health. However, various nutritional disorders and poor nutrition due to poor food quality or food quantity that does not meet the needs of each person's body are still often found in various places in Indonesia. These nutritional disorders represent a condition caused by an imbalance between the nutrients that enter the body and the body's need for nutrients. This nutritional problem is a reflection of the suboptimal consumption of energy and other nutrients [1].

More working women significantly impact family dynamics, including childcare patterns and child nutritional status. The maternal pattern of work strongly affects the child's development, especially in terms of nutritional status, which is an essential indicator of the optimal health and growth of the child [2]. Parents use a variety of ways to care for and educate their children, which are known as patterns of care. In terms of feeding practices, parenting styles encompass two key aspects: demandingness and responsiveness. These aspects form the basis for four distinct feeding styles: authoritative (characterized by high demandingness and high responsiveness), authoritarian (high demandingness and low responsiveness), permissive (low demandingness and high responsiveness), and neglectful (low demandingness and low responsiveness). Good nursing patterns are essential to meeting a child's basic needs, including the nutrition needed for growth and development. Given the constraints of time and energy after going through the daily routine of work, working mothers often face the greater challenge of implementing the ideal nursing pattern [3].

One of the important indicators for assessing a child's general health is the child's nutritional status, which is often influenced by various factors, such as care patterns, family economies, and parents' education. For example, a study by Darling et al found that children nursed with a democratic feeding style had a better nutritional status than children nurtured with authoritarian or permissive feeding styles [4]. The democratic pattern of caring demonstrates open communication, compassion, and self-reliance balanced with control, which encourages children to develop healthy, self-sufficient eating habits [5].

When moms work, babysitting patterns become unattended. Mothers working out of the house should be able to balance their responsibilities as householders with their work duties, including caring for their children. It often affects the quality and quantity of mother-child interactions. This can affect a child's eating patterns for a long time [6]. Working mothers have more trouble providing healthy and balanced meals for their children than non-working moms. The limited time to cook and eat with the family can also reduce the opportunity for mothers to directly monitor and direct their children's eating habits [7]. Furthermore, increasing attention to youth nutrition is part of a global effort to reduce malnutrition and improve children's health, which makes this research important. UNICEF and the World Health Organization (WHO) continue to stress the importance of nutrition during the first 1,000 days of life, including during pregnancy and the first two years of a child's health [8]. In adulthood, poor nutrition can have a negative impact on health, cognitive development, and productivity [9].

From the above exposure, it is known that more working mothers have a significant impact on family dynamics, one of which is childcare patterns. Babysitting patterns in working mothers greatly influence the development of the child, especially in terms of nutritional status, which is an important

indicator for the optimal health and growth of the baby. Previous research has established a relationship between parenting styles and the nutritional status of toddlers. However, these studies have not specifically considered the nutritional outcomes of toddlers whose mothers are employed, despite the growing number of working mothers who also provide primary care for their children. Therefore, researchers are interested in looking at how the feeding style applied by working mothers relates to the nutritional status of their babies. With a better understanding of the factors affecting a child's nutritional status, mothers can enhance the practice of giving a healthier diet and feeding style to support their child's health and development optimally. In addition, the results of this research can also be the basis for the development of more effective intervention programs to improve the nutritional status of young people in DIY and its surroundings. This study aims to determine the relationship between parental feeding style and the nutritional status of toddlers among working mothers.

2. Method

The study was an analytical observational study with a cross-sectional design. The target population consisted of all working mothers in the Yogyakarta Region. Purposive sampling was applied, focusing on urban areas with many female workers from five towns/districts. The total number of participants in this study was 211 mother-child pairs. The inclusion criteria for the mothers were women aged 19-49 who were employed or had an income. The inclusion criteria for the children were being 6-59 months old, not suffering from chronic disease, and living at home with their mothers. The exclusion criteria for this study included children with infections (e.g., diarrhea, bronchitis) that could impact nutritional status, as well as those not residing with their mothers. Data collection took place from August 2023 to September 2023.

The study's independent variable was the feeding style, referring to the interaction of parents with children during meals. This variable was measured using the Caregiver's Feeding Style Questionnaire (CFSQ), which assesses care patterns. The feeding practice patterns consist of two main dimensions: demandingness, which reflects the extent to which parents encourage their children to eat, and responsiveness, which describes how parents respond to their child's need to eat [10]. The CFSQ consists of two parts: the demandingness element with 17 statements and the responsiveness element with 10 statements. The questionnaire used has passed a validity test, ensuring that both the number and content of the questions were appropriately adapted to the research respondents. The scoring system ranges from always (1 point) to never (5 points), and the scores for each element are summed.

The study's dependent variable was the nutritional status of the toddlers, which was assessed using z-scores for weight-for-age, height-for-age, and weight-for-height. Nutritional status was measured using the parameters of weight (BB), height (TB), and age (U). The instruments used for anthropometric measurements included a digital scale and a baby scale. The result of the data is a z-score value, with the following classification [11]:

Table 1. Z-Score Value

Indices (Children aged 0 – 60 months)	Nutritional Status Category	Threshold (Z-Score)
Weight-for-age (W/A) z-score	Underweight	- 3 SD sd <- 2 SD
	Normal	-2 SD sd +1 SD
	Risk of overweight	> +1 SD
Height-for-age (H/A) z-score	Stunting	- 3 SD sd <- 2 SD
	Normal height	-2 SD sd +3 SD
	Above normal Height	> +3 SD
Weight-for-height (W/H) z-score	Malnutrition	<-3 SD sd <- 2 SD
	Normal	-2 SD sd +1 SD
	Risk of overweight	> + 1 SD sd + 2 SD
	Obesity	> + 2 SD sd > + 3 SD

The Shapiro-Wilk normality test yielded significant results ($p < 0.05$), indicating that the data were not normally distributed. Consequently, the Spearman rank correlation test assessed the relationship between feeding style and children's nutritional status. The analysis was performed using STATA 2014. The research was approved by the Ethics Committee of the University of 'Aisyiyah Yogyakarta (No. 3205/KEP-UNISA/IX/2023).

Table 2. Normality Test Result

Demandingness (score)	Responsiveness (score)	W/A	H/A	W/H	
p	0.000	0.000	0.025	0.025	0.002

3. Results and Discussion

3.1. Results

The study included 211 mother-child pairs, the characteristics of which are presented in Table 3. The toddlers had a mean age of 33.8 months, and the mothers had a mean age of 30.7 years, with an average monthly income of Rp 2.032.971,00. Most mothers had a higher education (45%) or senior high school education (38%), with the majority working as private sector employees (37%) or entrepreneurs (26%). Regarding family size, 45% of families had two children, and 37.5% had one child. The toddlers were almost evenly split by gender, with 50.2% boys and 49.8% girls.

Based on the nutritional status assessment of toddlers, toddlers' nutrition status is categorized into three main dimensions: weight-for-age, height-for-age, and weight-for-height. In the weight-for-age category, toddlers are classified into three groups, with the highest percentage found among those at risk of being overweight (57%). For height-for-age, toddlers are categorized into three groups, most falling within the normal range (66%). The weight-for-height category is divided into four groups, with the highest percentage of toddlers classified as well-nourished (59%).

Table 3. Respondent Characteristics

Characteristics (n = 211 mother-child pairs)	Frequency (n)	Percentage (%)	
Toddler's age (months)	33.8 ± 13.5 (Mean ± SD)		
Mother's age (years)	30.7 ± 5.13 (Mean ± SD)		
Mother's income (IDR)	2.032.971 ± 994.865.6 (Mean ± SD)		
Mother's education	Primary School	8	4
	Junior high School	27	13
	Senior High School	80	38
	Higher Degree (Diploma/bachelor and other)	96	45
Mother's occupation	Entrepreneur/business owner	55	26
	Private sector employee	78	37
	Civil servant	18	8.5
	Laborer	28	13
	Freelancer	16	8
	Others	16	8

Characteristics (n = 211 mother-child pairs)		Frequency (n)	Percentage (%)
Number of Children	1	79	37.5
	2	95	45
	3	29	14
	4	7	3
	5	1	0.5
Toddler's Sex	Boy	106	50.2
	Girl	105	49.8
Toddler's Nutritional Status	Underweight	6	3
	Normal	85	40
	Risk of overweight	120	57
Indice Height-for-age	Stunting	59	28
	Normal weight	139	66
	Above normal height	13	6
Indice Weight-for-height	Malnutrition	11	5
	Normal	124	59
	Risk of overweight	34	16
	Obesity	42	20
Demandingness Aspect	Low	99	47
	High	112	53
Responsiveness Aspect	Low	103	49
	High	108	51

Regarding parental feeding style on table 3, there was nearly equal distribution between the demandingness and responsiveness aspects, with slightly more respondents indicating a high score in demandingness (53%) compared to responsiveness (51%).

Table 4. Children's Nutritional Status and Feeding Patterns

Variable	Mean \pm SD	Median (Min-Max)
Nutritional status	Weight-for-age z-score	1.33 \pm 1.83
	Height-for-age z-score	-0.82 \pm 2.1
	Weight-for-height z-score	0.45 \pm 1.75
	Parental Feeding (score)	3.61 \pm 0.76
	Aspect of demands	3.47 \pm 0.6
	Responsive aspect	3.74 \pm 0.81

According to Table 4, which presents average values and ranges for z-scores of weight-for-age (W/A), height-for-age (H/A), and weight-for-height (W/H), the results indicate variability in the nutritional status among children in the study population. The average z-scores are as follows: W/A 1.33 \pm 1.83, H/A -0.82 \pm 2.1, and W/H 0.45 \pm 1.75. Based on these nutritional indices, the majority of children in the study exhibit normal nutritional status.

Regarding feeding patterns, the overall score averaged 3.61 \pm 0.76. For the demandingness aspect, the mean score was 3.47 \pm 0.6, suggesting that parents consistently applied feeding rules with careful consideration. In terms of responsiveness, the mean score was 3.74 \pm 0.81, indicating a high level of attentiveness to the child's needs during feeding.

Table 5. Association of Feeding Patterns and Children's Nutritional Status

Parental feeding style (N = 211)		Nutritional status		
		W/A z-score	H/A z-score	W/H z-score
Demanding	Spearman's rho	-0.03	-0.07	-0.08
	Prob > t	0.662	0.322	0.226
Responsive	Spearman's rho	0.01	-0.17	-0.11
	Prob > t	0.947	0.014	0.115

Table 5 shows a significant relationship between height-for-age (H/A) z-score and the responsive aspects of democratic nutritional care patterns (p=0.014). Based on the correlation coefficient (r = -0.17) suggested a negative association, which indicated that higher scores in the

responsive aspect of caregiving patterns were associated with lower height-for-age nutritional status values.

3.2. Discussion

Darling et al. (2021) found that children raised in a democratic caregiving pattern, similar to responsive caregiving, exhibit improved nutritional status compared to those under authoritarian or permissive caregiving styles. Democratic values, characterized by open communication, affection, and self-reliance balanced with guidance, encourage healthy, self-regulated eating habits [11]. Furthermore, this study highlights the significant impact of working mothers on caregiving patterns and, consequently, child nutritional status. Balancing work and household responsibilities can affect the quality of interaction and supervision of children's diets, underscoring the importance of responsive and strategic caregiving in supporting optimal child nutrition, particularly in households with working mothers [13].

Responsive feeding styles have been found to significantly influence children's height-for-age (H/A) z-scores. The author's research indicates that a responsive caregiving pattern, characterized by prompt and accurate responses to children's needs, correlates negatively with children's H/A nutritional status. This suggests that higher scores in responsiveness are associated with lower H/A z-scores, potentially contributing to issues such as stunting or below-average height for age [14]. Several factors may explain this relationship. First, while responsive caregiving ensures timely attention and feeding, overly quick responses to children's preferences might lead to imbalanced diets. Children may receive more preferred but nutritionally inadequate foods, such as sweets or junk food, which do not support optimal growth. Second, catering to dietary demands could result in irregular eating patterns, with frequent meals but insufficient nutritional intake. Third, although responsive caregiving addresses immediate needs during illness, inadequate health knowledge may expose children to recurrent infections that hinder physical growth. Lastly, dependence on caregivers' responses may limit children's ability to develop independence in recognizing hunger and fullness signals, crucial for establishing healthy eating habits. Therefore, while responsive caregiving promotes emotional and social development, a balanced approach and parental education on healthy dietary practices are essential to prevent stunting and support optimal physical growth [15].

In contrast, responsive caregiving patterns did not show a significant relationship with weight-for-age (W/A) and weight-for-height (W/H) nutritional statuses. The authors confirmed this in a study where the correlation between responsiveness and W/A and for W/H results indicating no significant influence on these nutritional indices. This may be attributed to other predominant factors affecting W/A and W/H, such as daily nutritional intake, food quality, and child health conditions. Responsive caregiving patterns may primarily impact the emotional and psychosocial aspects of children rather than directly influencing their physical nutritional states. Additionally, while responsive caregiving fosters a supportive environment, without adequate and balanced nutrition, its influence on children's weight and body proportions may be limited [16].

External factors including access to nutritious foods, family eating habits, and social environments also play crucial roles in determining W/A and W/H nutritional statuses. While responsive caregiving may contribute to a nurturing environment, its direct impact on children's weight and body proportions may be overshadowed by other factors more directly related to nutritional intake and physical health [17]. Thus, while responsive caregiving is vital for overall child development, including emotional and social health, its direct influence on W/A and W/H nutritional statuses may be limited due to the greater influence of factors related to nutritional intake and physical health. These findings underscore the necessity of a multifaceted approach to improving child nutritional status, incorporating nutritional education, access to nutritious foods, and a supportive family environment.

Further supporting this view, Baek et al. (2018) found that while responsive caregiving patterns are crucial for children's psychosocial development, they do not directly affect W/A and W/H nutritional statuses. The authors concluded that factors such as balanced and adequate nutritional intake and overall child health condition play more significant roles in determining W/A and W/H nutritional statuses. Positive caregiving patterns may influence children's eating behaviors more than their current nutritional statuses [18]. Darling et al. (2021) also suggested that while responsive caregiving impacts children's eating behaviors, its effect on W/A and W/H nutritional statuses is minimal. They proposed that differences in caregiving responsiveness patterns may influence long-term food preferences and eating habits more than immediate nutritional statuses [19].

Additionally, demanding caregiving patterns did not show significant relationships with W/A, H/A, or W/H nutritional statuses. According to this study, Spearman-rank tests indicated no significant correlations. This finding aligns with research by Darling et al. (2021), which found that while demanding caregiving patterns may influence children's nutritional discipline, they do not directly correlate with W/A, H/A, or W/H nutritional statuses. The authors suggested that factors such as daily eating habits, nutritional intake quality, and overall child health condition have more substantial impacts on these nutritional statuses than caregiving demandingness [20]. Furthermore, Baek et al. (2018) noted that demanding caregiving patterns, characterized by inflexibility and a focus on control and discipline, may not always address children's individual nutritional needs adequately. This structured approach to diet may not always meet children's overall nutritional requirements, where attention to essential nutrients like proteins, vitamins, and minerals is crucial for growth and development. Neglecting these factors could outweigh the impact of caregiving demandingness patterns on W/A and W/H nutritional statuses [21].

This study has several acknowledged limitations. The use of purposive sampling, unlike random sampling, may limit result generalizability. Additionally, the smaller sample size in this study could restrict broader applicability compared to studies with larger samples yielding more reliable outcomes. The reliance on Spearman-rank tests, while straightforward, may lack the depth of multivariate regression used in other studies, which offer more nuanced insights into variable relationships. Moreover, insufficient control for influencing variables could affect results in accuracy and reliability. The cross-sectional design, focusing on a single time point, lacks the longitudinal perspective that better elucidates causal relationships. Lastly, variations in measurement instruments across studies may introduce result disparities with current study.

Despite these acknowledged limitations, this study offers several strengths. It provides a focused exploration of responsive feeding patterns and their relationship with child nutritional statuses, which are critical areas for child health. By analyzing these relationships, the study offers valuable insights for parents, caregivers, and policymakers. The use of a well-structured questionnaire ensures consistent data collection. Moreover, the findings from this study could inform targeted intervention within specific communities. This enhances the potential effectiveness of health and nutrition initiatives implemented in these areas. Furthermore, the study enriches scientific literature by presenting new perspectives on how feeding styles influence child nutritional status. While not demonstrating significant relationships between responsive feeding patterns and certain nutritional indicators, the findings highlight the potential influence of other factors. This underscores the importance of further research exploring alternative variables and employing diverse methodologies to deepen understanding in this field.

4. Conclusion

The study found that the responsive feeding pattern of working mothers had a significant relationship with the nutritional status of young children based on height-for-age indice. In contrast,

the demanding and democratic feeding patterns showed no significant relationship with the nutritional status of children. These findings provide important insights for working mothers. It is crucial for working mothers to strike a balance between responsiveness and demandingness in their feeding practice. While it is important to respond to a child's needs, it is equally important to encourage healthy and nutritious eating habits and maintain a regular eating schedule. Based on the results of this research, the government can implement public health interventions, including educating parents on the importance of responsive feeding practice, which involves engaging children in the eating process and food choices. Additionally, collaboration with relevant sectors, such as health workers at Community Health Centers, can provide targeted support and guidance to working mothers.

Acknowledgment

We praise and thank the One God for His blessings and mercy, enabling us to complete this scientific work. We recognize that this accomplishment would have been difficult without the help and guidance of various individuals. Therefore, we extend our heartfelt thanks to Ceria Ciptanurani, S.Gz., MS, for her invaluable support as the research supervisor. We acknowledge that this paper may still have shortcomings and welcome constructive criticism and advice to improve this work. Finally, we extend our sincere gratitude and hope this scientific work will benefit all who need it.

Conflict of Interest

The authors report no conflicts of interest.

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