

## ASSOCIATION BETWEEN PARENTAL FEEDING STYLES AND FEEDING DIFFICULTIES AMONG PRESCHOOL CHILDREN IN DENPASAR, INDONESIA

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### ABSTRACT

**Background:** Nutrition during the preschool period is crucial for growth and cognitive development. Feeding difficulties are common and can lead to malnutrition. Parental feeding style—authoritarian, democratic, or permissive—plays a major role in children's eating behaviour. This study aimed to determine the association between parental feeding style and feeding difficulties among preschoolers in Denpasar, Indonesia.

**Methods:** A descriptive-analytic cross-sectional study was conducted between April and June 2025 in five kindergartens selected by cluster random sampling. A total of 196 children were recruited systematically. Data were collected using validated questionnaires on feeding style and feeding difficulty behaviour and analysed with SPSS 26 using univariate, bivariate, and multivariate statistics.

**Results:** Feeding style was significantly associated with feeding difficulties ( $p < 0.001$ ). Children of authoritarian parents showed the highest prevalence of feeding problems (95.0%, PR = 5.2, 95% CI 3.76–7.26), followed by permissive (52.5%, PR = 3.6, 95% CI 2.24–5.78), whereas democratic parenting showed the lowest rate (0.9%). Multivariate logistic regression confirmed feeding style ( $B = 0.499$ ,  $p < 0.001$ ) as a key determinant of feeding difficulty.

**Conclusion:** Parental feeding style is significantly associated with feeding difficulties among preschool children in Denpasar. Authoritarian and permissive styles increase risk, while democratic style is protective.

**Keywords:** Preschool children, feeding difficulty, parental feeding style.

### INTRODUCTION

Nutrition is vital throughout the lifespan, particularly in early childhood, when growth and brain development are most rapid. Poor nutritional status in preschool years may lead to stunted growth and delayed cognitive development, thereby affecting future quality of life and human capital.<sup>1</sup> According to the 2023 Indonesian health survey, the prevalence of underweight and stunting, among under-five children were 12.9% and 21.5%, indicating persistent nutritional problems nationwide.<sup>2</sup>

Feeding difficulty is a common concern, affecting 20–50% of healthy children and up to 70–89% of those with developmental issues. A study in Jakarta (2011) reported a 33.6% prevalence of feeding difficulty, with 44.5% experiencing mild to moderate malnutrition and 79.2% lasting over three months.<sup>3</sup> Feeding difficulties can arise from organic causes (anatomical, neurological, gastrointestinal, cardiac, infectious, or metabolic problems) or non-organic behavioural factors related to parenting.

Parental feeding style reflects attitudes and interactions between parents and children, including discipline, reward, and response to behaviour. Three main types are identified: authoritarian, democratic, and permissive.<sup>4,5</sup> Previous studies in Medan, Sadangwetan

Village, and Sleman have shown a significant relationship between feeding style and feeding behaviour in toddlers, with democratic styles associated with milder feeding problems. In Bali, 4.9% of children were underweight in 2023, highlighting local nutritional concerns.<sup>2</sup> This study aimed to determine whether parental feeding style is associated with feeding difficulties among preschool children in Denpasar, Indonesia.

### METHODS

A descriptive-analytic cross-sectional design was used to evaluate the relationship between parental feeding style and feeding difficulties among preschool children. All variables were measured once at a single point in time. The study was conducted in five kindergartens across Denpasar City (North, South, East, and West districts) from 1 April to 30 June 2025. The target population comprised all preschool children in Denpasar. Eligible participants were children attending the selected kindergartens whose parents consented to participate. The inclusion criteria are child attending kindergarten in Denpasar and parent providing written informed consent. The exclusion criteria are child with medical conditions interfering with feeding assessment and uncooperative or non-consenting parents. Sample size was calculated using the formula for proportion estimation at 95% confidence

and 7% precision, yielding a minimum of 196 subjects based on a previous study reporting 52% feeding difficulty (Hardianti et al., 2018). Cluster random sampling selected five kindergartens; systematic random sampling within each school ensured representation. The distribution of samples are TK Aisyiyah Bustanul Athfal 2 = 31, TK Permata Hati = 63, TK Aisyiyah Bustanul Athfal 4 = 9, TK Al Amin = 69, TK Barunawati = 24. Primary data were obtained using structured questionnaires covering parental and child

## RESULTS

### Demographic Characteristics

*Table 1. Demographic characteristics of participants*

Variable	Mean ± SD / n (%)
<b>Parental age (years)</b>	33.01 ± 4.21
<b>Parental education</b>	
– Primary school	1 (0.5)
– Junior high school	7 (3.6)
– Senior high school	85 (43.4)
– University degree	103 (52.6)
<b>Parental occupation</b>	
– Unemployed	103 (52.6)
– Civil servant	2 (1.0)
– Private employee	91 (46.4)
<b>Feeding style</b>	
– Democratic	117 (59.7)
– Authoritarian	20 (10.2)
– Permissive	59 (30.1)
<b>Child age (months)</b>	63.64 ± 4.88
<b>Sex</b>	
– Male	97 (49.5)
– Female	99 (50.5)
<b>Nutritional status</b>	
– Overweight/obese	29 (14.8)
– Normal	106 (54.1)
– Under/poor nutrition	61 (31.1)

*Note: Values are expressed as mean ± standard deviation or frequency (percentage).*

A total of 196 preschool children participated in this study. The sociodemographic profile revealed that most parents were in early adulthood and had completed higher education, reflecting a generally well-educated sample. More than half of the caregivers were employed,

characteristics, feeding style, and feeding behaviour. The feeding-style instrument comprised 18 items (6 per style) rated from 1 “never” to 5 “always.” The style with the highest score was assigned as dominant.

Data were analysed using SPSS version 26. Univariate analysis described frequency distributions; bivariate analysis (Chi-square test) assessed associations between variables; and multivariate logistic regression identified independent predictors of feeding difficulty. Statistical significance was set at  $p < 0.05$ .

### Association Between Feeding Style and Feeding Difficulty

*Table 2. Association between parental feeding style and feeding difficulty among preschool children*

Feeding style	Feeding difficulty Yes n (%)	Feeding difficulty No n (%)	PR (95% CI)	p value
<b>Democratic</b>	1 (0.9)	116 (99.1)	0.14 (0.002–0.95)	< 0.001 *
<b>Authoritarian</b>	19 (95.0)	1 (5.0)	5.2 (3.76–7.26)	< 0.001 *
<b>Permissive</b>	31 (52.5)	28 (47.5)	3.6 (2.24–5.78)	< 0.001 *

*Note: Chi-square test;  $p < 0.001$  considered statistically significant.*

Bivariate analysis demonstrated a significant association between parental feeding style and feeding

and the democratic feeding style predominated among families, indicating a tendency towards balanced parental approaches in child-rearing. The gender distribution of children was nearly equal, and over half exhibited normal nutritional status.

difficulty ( $p < 0.001$ ). Children raised under authoritarian and permissive styles exhibited markedly higher

proportions of feeding difficulties compared to those with democratic parents, suggesting that rigid control or

excessive leniency during feeding may negatively affect children's eating behaviour.

### Multivariate Logistic Regression

*Table 3. Logistic regression of factors associated with feeding difficulty*

Variable	B Coefficient (95% CI)	p value
Feeding style	0.499 (0.449–0.898)	< 0.001 *
Nutritional status	0.178 (0.070–0.370)	< 0.001 *
Sex	0.010 (−0.097–0.115)	0.52
Parental education	−0.002 (−0.128–0.124)	0.326
Parental occupation	−0.027 (−0.149–0.101)	0.463

*Note: Logistic regression analysis; p < 0.05 significant.*

Multivariate logistic regression further identified feeding style and nutritional status as independent predictors of feeding difficulty, after controlling for other variables such as parental education, occupation, and child sex. Feeding style demonstrated the strongest predictive value, confirming its central role in shaping children's feeding behaviour. In contrast, parental education, occupation, and child sex were not statistically significant predictors.

### DISCUSSION

The average parental age (33 years) reflected young to middle-aged adults commonly responsible for child feeding. Children averaged 63.6 months ( $\approx$  5 years), a critical period for establishing lifelong eating habits. Adequate nutrition and positive feeding interactions during this stage strongly influence cognitive and physical development.

Over half of parents possessed tertiary education, consistent with higher nutritional awareness and healthier feeding practices. Previous evidence demonstrates that parental education enhances understanding of children's dietary needs and fosters responsive feeding. Employment status indicates socioeconomic access to adequate food resources.<sup>6</sup> Working parents may have more financial stability, although time constraints could affect feeding supervision.

Most parents in this study practised the democratic feeding style (59.7%), aligning with literature associating it with optimal child outcomes.<sup>7,8</sup> Democratic parenting encourages open communication and guided autonomy, allowing children to make healthy food choices without coercion.

Children exposed to authoritarian parenting exhibited the highest rate of feeding difficulties (95%). Excessive control and punishment may elicit stress and food refusal (Ningning et al., 2023). Permissive parenting, while less controlling, often lacks structure, leading to inconsistent eating schedules and selective eating.<sup>9,10,11,12,13,14</sup>

Approximately one-quarter of participants experienced feeding problems, mainly poor appetite, food selectivity, and food fear. Prior studies link these behaviours to environmental factors, including parental interaction style.<sup>15,16,17,18,19</sup> Democratic approaches reduce mealtime stress and promote self-regulation, whereas

authoritarian approaches heighten anxiety and aversion to food.<sup>20,21,22,23,24,25</sup>

Regression analysis confirmed that both feeding style and nutritional status were independent predictors of feeding difficulty. Children with suboptimal nutritional status faced greater risk of ongoing feeding problems, perpetuating a negative nutritional cycle. The findings underscore the need for community-based interventions educating parents about democratic feeding principles—balancing structure, empathy, and consistency—to improve children's eating behaviour and overall health.<sup>13,14,17</sup>

### CONCLUSION

Parental feeding style has a significant association with feeding difficulty among preschool children in Denpasar. Authoritarian and permissive approaches substantially increase the risk, whereas a democratic style offers a protective effect. Nutritional status further modulates this relationship. Educational programmes promoting democratic parenting and nutritional literacy are essential to prevent feeding difficulties during early childhood.

#### Author Contributions

All authors contributed equally to study conception, data collection, analysis, and manuscript preparation. All authors reviewed and approved the final version.

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#### Conflict of Interest

The authors declare no conflict of interest.

#### Ethical Approval

Ethical clearance was obtained from the Research and Development Unit, Faculty of Medicine, Udayana University/RS Ngoerah (No. 0943/UN14.2.2.VII.14/LT/2025). Research permit No. B/3877/UN14.2.2.V.11/PT.01.04/2025.

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