



Effects of Children's Eating Habits on Parental Anxiety and Views on Child-Rearing

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Abstract

This study investigates the relationship between parents' perception of their children's eating behaviors, dietary anxiety, and their child-rearing views. A survey was conducted with 349 parents raising children aged 3 and older at four preschool facilities in Japan. Factor analysis was performed on eating behaviors and child-rearing views. Subsequently, correlation analysis and logistic regression were performed to identify factors related to parental dietary anxiety. Finally, regression analysis explored the moderating effect of social support on dietary anxiety and child-rearing views. Parents' awareness of picky eating, manners, and play eating behaviors is associated with dietary anxiety. This anxiety positively relates to feelings of burden and irritation and negatively affects fulfillment in child-rearing views. Specifically, recognizing picky eating may lead to dietary anxiety. Having supportive confidants can mitigate these effects. Firstly, the correlations between dietary behaviors and parental anxiety imply the importance of caring children's eating habits, especially with picky eaters. Secondly, having supportive confidants may help maintain a positive outlook on child-rearing, even when dietary anxiety arises. The importance of supporting parents' concerns about their children's dietary habits through social services such as nurseries and kindergartens has been acknowledged.

KEYWORDS: PARENTS' ANXIETY, YOUNG CHILDREN'S EATING, YOUNG CHILDREN'S EATING BEHAVIORS, VIEWS ON CHILD-REARING, QUESTIONNAIRE SURVEY

Introduction

In recent years, mothers raising infants and young children in Japan have become increasingly concerned and burdened with child-rearing due to the increasing incidence of nuclear families, declining birthrate, and diversification of families. Kubo (2015) indicated the difficulty of balancing work and child-rearing for mothers with children in preschool and explicitly identified the childcare environment, inadequate childcare for sick children, and children recovering after illnesses as impediments to balancing work and child-rearing. Azuma et al. (2009) also indicated that mothers experience difficulties and anxiety when raising children and indicated factors, such as mothers' lack of confidence in their own ability to raise children, questioning their tendency to rely on their own efforts. Additionally, Johya (2015) pointed out that mothers

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with lesser requirement for help do not actively seek support even when they find it difficult to raise their children; therefore, it is necessary for supporters to provide careful involvement and proactive information even to mothers who ostensibly do not require them. Thus, previous studies have shown that many Japanese parents are concerned about child-rearing, and it is an urgent issue to consider support for parents.

For parents, daily eating habits provide an opportunity to observe and communicate with their children. However, it has been reported that many parents find it difficult to be involved in their children's eating behavior, as eating is a daily routine accompanied by individual preferences and physiological behaviors, such as picky eating and food intake. Ooka et al. (2013) reported that, approximately 20% of parents do not enjoy eating with their young children because of problems related to their eating behavior, such as play eating, uneven eating, and low food intake. Ooka et al. (2009) also indicated that many parents have various questions regarding their young children's oral and eating habits. These challenges for parents, regarding their infants' and young children's eating habits, are also reflected in the significant proportion of descriptions of eating habits in parents' contact notes with nursery school teachers (Hayashi, 2009). Mothers' behaviors greatly affect their children's food intake and other factors during mealtimes (Moore et al., 2007). Therefore, it can be inferred that mothers are more likely to feel stressed about their children's food intake and eating behaviors.

However, a study has been conducted on the collaboration of teachers and parents, explicitly demonstrating that the aspect of communication in a contact book focusing on children's meals, which is a daily part of childcare, led to a change in parents' awareness of child-rearing (Ito, 2017). Further, it has been pointed out that parents of children with dietary challenges demonstrate high child-rearing anxiety and are mentally unstable (Hasegawa & Imada, 2004). Therefore, it is possible that parents' anxiety about their children's eating is not limited to the eating situation, but also affects parents' outlook toward child-rearing. It can be inferred that parents' anxiety about their children's eating is not limited to the eating situation.

Kubo and Igari (2009) pointed out the possibility that human connections may reduce hardships, as, beyond themselves, about half of the mothers relied most on their husbands for child-rearing. Given that previous studies have pointed out the necessity and significance of someone to turn to for one's concerns on child-rearing (Imai & Anme, 2001), it will be necessary to examine the relationship between parents' anxiety about their children's eating habits and the associated sense of burden about child-rearing, as well as their relationship with their closest people, who can be consulted on childcare.

Therefore, this study investigates the relationship between parents' perception of their children's eating behaviors, dietary anxiety, and their child-rearing views.

This study was conducted on children aged 3 years. While young children learn to enjoy eating with good manners and communication (Ito, 2013a), adults need to ensure that they can simultaneously engage in multiple acts of "eating," "enjoying," and "learning" (Ito, 2013b). Therefore, we thought that by focusing on mealtime situations in early childhood (ages three and above), the actual situation of eating guidance by teachers would be more prominently represented.

Methods

Survey methods

A questionnaire survey was administered to 349 parents, raising young children aged 3 years and older, from October 2019 to January 2020. The survey was conducted at four public, private, and nationally certified kindergartens and nursery schools, where cooperation was obtained. In the case of siblings attending the same preschool, the parents were asked to complete a questionnaire for one of the siblings. The parents, who completed the questionnaires, included 12 fathers and 337 mothers; the 349 children were divided across four age-groups as follows: 22 3-year-olds, 100 4-year-olds, 120 5-year-olds, and 105 6-year-olds (2 missing value).

Survey content

The survey asked parents about their child's age, gender, and other attributes. It also evaluated parental attitudes toward child-rearing (16 items), children's eating behaviors (22 items), availability of social support for parenting (7 items), and anxiety regarding children's dietary topics.

To assess parental attitudes toward child-rearing, the authors critically evaluated the questionnaire items for content validity and clarity, ensuring a concise item pool aligned with the objective of capturing mothers' perspectives on child-rearing. Item development was informed by Stern's (1995/2000) delineation of four central themes encountered in motherhood—life growth, primary relatedness, supporting matrix, and identity reorganization—as well as empirical studies on Japanese mothers' child-rearing consciousness (Kumano, 2016; Sumida & Nakada, 2000) and the Benesse Education Research and Development Institute's (2011) survey on maternal child-rearing attitudes. For survey items related to eating behavior, we used items from Ito and Nanakida (2014): "Eating Behaviors I Want My Child to Acquire."

A 5-point scale (1: Not at all (not applicable at all); 3: Neither; 5: Very much (applicable very much)) was used to obtain responses regarding views on child-rearing and children's behavior in eating situations. For the item related to social support resources, we asked "How often do you consult with them when you feel anxious about child-rearing?" (1: Not at all, 3: Neither, 5: Much, and if no siblings, Not applicable). Finally, for anxiety regarding their children's dietary topics, the respondents were asked, "Do you have any anxiety about your children's eating?" (1: no, 2: yes). These items were modified by the four directors of the surveyed certified kindergartens and nursery schools to ensure that they were appropriate and that there were no missing items.

Parental consciousness regarding child-rearing and children's eating behaviors was assessed using a 5-point Likert scale (1: not at all, 3: neutral, 5: very much). To evaluate the availability of social support, parents reported the frequency of consultations regarding child-rearing concerns with potential confidants, such as spouses, grandparents, friends, and early childhood educators, on a scale of 1 (never) to 5 (often). Regarding dietary anxieties, parents were asked, "Do you have concerns about your children's eating habits?" with a binary response option of 1 (no) or 2 (yes). The directors of the four certified kindergartens and nursery schools reviewed the questionnaire items to ensure their relevance and thoroughness.

Analysis method

For missing data, pairwise deletions were performed in each analysis. HAD (Ver. 16) was used for factor analysis. This statistical package is distributed free of charge by Yuji Shimizu, a Japanese social psychologist (Shimizu, 2016; see <http://norimune.net/had>).

Ethical considerations

This study used an anonymous questionnaire survey, and parental cooperation was voluntary. There were no conflicts of interest and no incentives, such as gratuities. As part of the informed consent procedure, we first explained the purpose and outline of the study directly to the preschool children and requested their cooperation. At that time, privacy guidelines for this study were presented, and, if consent for research cooperation was obtained, a survey of parents was requested.

The cover letter of the questionnaire stated the purpose and outline of the research: that this is an anonymous questionnaire, that the responses will be stored and statistically processed such that personal information cannot be identified, that cooperation in the survey is voluntary, and that consent for cooperation is deemed to have been obtained through the response to the survey.

The answered questionnaires were collected by the researcher after the participants individually deposited them in a strictly sealed special envelope in a survey collection box located at each park. The whereabouts of the principal investigator were indicated on the questionnaire, the inquiries were fully explained, and cooperation was requested when consent was obtained.

Results**Factor analysis of parents' "views on child-rearing."**

An exploratory factor analysis was conducted to examine parents' views on child-rearing (Table 1). To determine the factor structure, we followed the guidelines set forth by Hori (2005). We considered the Kaiser criterion, which suggests retaining factors with eigenvalues greater than 1, the Minimum Average Partial (MAP) criterion in the scree test, and the outcomes of the parallel analysis. We adopted a structure that allowed for a theoretical interpretation of the factor content and ensured that a sufficient number of items (at least three in this study) loaded significantly on each factor.

The scree test indicated that the eigenvalues derived from the data correlation matrix were 5.00, 1.98, 1.28, and 0.97, respectively, for the first four factors, respectively. The Kaiser Criterion suggests a three-factor solution. Parallel analysis showed eigenvalues of 1.40, 1.32, 1.25, and 1.20 for a randomly generated correlation matrix, which supported a three-factor interpretation when compared with the actual data. The MAP test yielded values of 0.27, 0.21, and 0.24 for the first three factors, respectively, indicating a two-factor solution. However, considering these analyses and the theoretical coherence of the items within each factor, a three-factor interpretation was deemed most appropriate. The model's goodness-of-fit was confirmed with a chi-square value of $\chi^2(75) = 179.769$, comparative fit index (CFI) of .933, and root mean square error of approximation (RMSEA) of .065.

The first factor was named “Irritation” (MacDonald’s $\omega = .78$), as it describes feelings toward children, such as, “I feel annoyed and irritated with my child” and “I occasionally consider directing my frustration toward my child.” The second factor was named “Burden” ($\omega = .79$), which refers to the parents’ own situation due to child-rearing, such as “I feel that parenting prevents me from having time for myself” and “Parenting prevents me from finding time to enjoy with my spouse.” The third factor represents positive attitudes toward children and child-rearing, such as “I feel that caring for a child is a joyful and happy experience” and “At times, I am struck by the sheer adorableness of my child,” and was named “Fulfilment” ($\omega = .76$). The reliability coefficient ω , for the three factors, showed a value of $.70 <$ that was acceptable for the scale structure; hence, the mean value of the items belonging to each factor was calculated as the scale score and used in the subsequent analysis.

Table 1 Exploring Factor Analysis of Parents’ Views on Child-rearing (Promax. ML)

Interpretive Translation of Items	Irritation	Burden	Fulfilment
I feel annoyed and irritated with my child	.895	-.068	.044
I occasionally consider directing my frustration towards my child	.806	-.004	.036
I am uncertain about how to interact with my child	.443	.116	-.138
I worry whether my child will grow up properly	.405	.054	-0.43
I feel that parenting prevents me from having time for myself	-.082	.827	.037
Parenting prevents me from finding time to enjoy with my spouse	-.140	.736	.063
I feel that I have to endure various things because of parenting	.207	.616	-.017
Parenting responsibilities prevent me from dedicating myself to my job	.085	.476	.053
I feel exhausted due to child-rearing	.130	.449	-.043
My close ones do not understand the difficulties of parenting	.075	.391	.102
I feel that caring for a child is a joyful and happy experience	.115	-.040	.884
At times I am struck by the sheer adorableness of my child	.029	.039	.682
I find playing with my child to be very enjoyable	-.057	.026	.655
I feel that parenting helps me grow and makes me proud	-.021	.059	.480
I feel that my parenting is good enough	-.175	-.029	.468
Inter-Factor correlation Irritation	(.780)	.589	-.481
Burden		(.791)	-.394
Fulfilment			(.761)

Note. The diagonal matrix represents MacDonald’s ω . These items were written by Japanese, and were translated into English for this paper.

Factor analysis of parents’ attitudes toward their children’s eating behavior.

An exploratory factor analysis was performed to examine parents’ attitudes toward their children’s eating behaviors, employing the same evaluative criteria mentioned above. The scree test suggested a two-factor solution according to the MAP criterion (values: 0.16, 0.16, and 0.17), whereas the Kaiser criterion indicated a six-factor structure (eigenvalues: 6.22, 1.81, 1.41, 1.31, 1.09, 1.05, and 0.99). A parallel analysis utilizing a random correlation matrix proposed a four-factor solution (eigenvalues: 1.51, 1.42, 1.35, 1.30, and 1.24). Considering

these findings, along with the theoretical interpretability of the subfactors and the requirement that at least three items load significantly on a single factor, a three-factor structure was deemed the most appropriate.

In an exploratory factor analysis, based on maximum likelihood (ML) and promax rotation, items with extremely low loadings (less than .35) on any factor were excluded from the analysis. Ultimately, 14 items and three factors were extracted, as shown in Table 2. The first factor represents nonplay eating behaviors, such as "Maintains focus while eating" and "Eats with proper posture," and was named "Play Eating" ($\omega = .84$). Similarly, the second factor represents actual eating behaviors, such as "Does not overfill mouth with food at once" and "Chews food well before swallowing," and was termed, "Manners" ($\omega = .74$). The third factor, which included behaviors, such as "Eating without leaving any leftovers" and "Willing to eat disliked foods," as well as "Consumes an appropriate amount of food," was called, "Picky Eating" ($\omega = .80$).

The reliability coefficients (ω) for the three factors were found to be adequate, each exceeding the threshold of .70. The mean values of the items corresponding to each factor were computed for further analysis. To facilitate interpretation of the analysis, the scale scores underwent an inverse linear transformation, resulting in higher mean values that reflect a negative orientation.

Table 2 Exploring Factor Analysis of Children's Eating Behaviors (Promax, ML)

Interpretive Translation of Items	Play eating	Manners	Picky eating
Maintains focus while eating	.861	-.126	-.026
Eats with proper posture	.720	.009	-.031
Focuses on eating without engaging in play	.697	.082	-.008
Remains seated during meals	.663	-.073	.144
Does not play with food	.428	.344	.009
Does not overfill mouth with food at once	-.101	.684	.002
Chews food well before swallowing	-.147	.615	.048
Not making noise while eating	.034	.570	.053
Does not talk with food in mouth	.232	.432	-.091
Keeps clean habits (e.g., do not eat dropped food)	.116	.427	-.058
No spills or food messes	.238	.412	-.005
Eat without leaving any leftovers	.026	-.080	.955
Willing to eat disliked foods	.014	.002	.713
Consumes an appropriate amount of food	-.029	.311	.415
Inter-Factor Correlation Play eating		(.839)	.338
		Manners	(.741)
		Picky eating	(.801)

Note. The diagonal matrix refers to McDonald's omega (ω). Scale scores reported below are linearly transformed in reverse order when calculated, meaning higher scores correspond to more negative implications. These items were written by Japanese, and they were translated into English for this paper.

Social support resources for parenting

Considering whom one could consult for childcare, the survey initially identified seven potential resources: spouses, grandparents, siblings, friends, community members, and early childhood educators. Subsequent analysis of the survey data revealed that respondents without siblings frequently selected “1: do not consult at all” or “3: neutral.” Additionally, “community members” and “local childcare support staff” were not distinctly conceptualized, leading to potentially ambiguous responses. Consequently, this report focused on four sources of consultation: spouses, grandparents, friends, and early childhood educators.

Descriptive statistics

Table 3 presents Spearman’s rank correlation matrix and summary statistics for each variable. “Anxiety in Children’s Eating” is represented as a dummy variable (0 for “no,” 1 for “yes”), and “Child Gender” is also coded as a dummy variable (0 for “female,” 1 for “male”).

It is noteworthy that a substantial proportion of parents (51%, as indicated by the mean score) reported anxiety about their children’s eating habits. The analysis did not reveal any significant correlations between anxiety about children’s eating and variables, such as age ($r = .06$) or social support resources ($r = -.02-.08$). In contrast, adhering to Cohen’s (1988) criteria, significant correlations were found between anxiety about young children’s eating and three child-rearing attitude factors: Irritation ($r = .19$), Burden ($r = .22$), and Fulfillment ($r = -.11$), although the effect sizes were small ($.20 < \delta$) ($.10 < |r| < .24$). Additionally, modest correlations were observed for children’s eating behaviors in terms of Play Eating ($r = .14$) and Manners ($r = .16$), with a notably larger effect size for Picky Eating ($r = .44$), suggesting a substantial correlation ($.80 < \delta$) ($|r| > .37$). Small-to-moderate effect size correlations ($r = .11-.27$) were also detected between children’s eating behavior and parental attitudes regarding child-rearing (Irritation, Burden). Conversely, a negative correlation of intermediate magnitude ($r = -.26$ to $.19$) was observed between eating behavior and parental fulfillment.

While the age of the child did not show a direct correlation with anxiety about children’s eating, this study primarily involved developing children in kindergarten ($M = 4.89$, $SD = 0.93$), and a small yet negative correlation was generally observed between age and “views on child-rearing” (Irritation, Burden) as well as eating behaviors. This finding suggests that developmental factors in children may act as confounding variables. Regarding gender differences, the study found that although the effect size was small, girls exhibited a slightly higher sense of burden ($r = 0.11$), while boys showed more concern regarding play eating, and manners ($r = -0.16$).

Table 3 Spearman's rank correlation matrix and summary statistics

	Attributes of children		Anxiety	Views on child rearing			Eating behavior			People who can be consulted on childcare				Mean	(SD)
	Age	Gender	N/Y	Irritation	Burden	Fulfilment	Play eating	Manners	Picky eating	Spouses	Grandparents	Friends	Educator		
Attributes of children															
Age	1.00													4.88	(0.93)
Gender (0 female, 1 male)	-.04	1.00												0.51	(0.50)
Anxiety in Childrens Eating															
N/Y (0 No, 1 Yes)	-.06	.04	1.00											0.45	(0.50)
Views on child rearing															
Irritation	-.10 ⁺	.06	.19**	1.00										3.12	(0.83)
Burden	-.09 ⁺	.11*	.22**	.52**	1.00									2.87	(0.74)
Fulfilment	.03	-.06	-.11*	-.42**	-.30**	1.00								4.36	(0.51)
Eating Behavior															
Play eating	-.11*	-.16**	.14*	.24**	.17**	-.19**	1.00							2.61	(0.85)
Manners	-.09 ⁺	-.16**	.16**	.27**	.23**	-.26**	.59**	1.00						2.52	(0.65)
Picky eating	-.23**	-.01	.44**	.11*	.13*	-.19**	.36**	.29**	1.00					2.66	(0.82)
Social Support resource															
Spouses	-.04	-.03	.01	-.14*	-.14**	.17**	-.10 ⁺	-.14**	-.04	1.00				4.40	(0.93)
Grandparents	-.11*	.00	-.02	.03	-.05	.14**	-.05	-.16**	-.12*	.22**	1.00			3.77	(1.14)
Friends	.01	.06	.06	.10 ⁺	.09	.12*	-.08	-.12*	-.02	.14*	.14**	1.00		3.77	(1.13)
Early Childhood Educator	-.09	-.01	.08	.03	.01	.13*	.02	-.09	-.04	.21**	.21**	.22**	1.00	3.53	(1.05)

** $p < .01$, * $p < .05$, ⁺ $p < .10$

Relationship between anxiety about children's eating and eating behaviors (logistic regression analysis)

Correlation analysis indicated that Picky Eating was significantly associated with parental anxiety about their children's eating habits, and there is a possibility that Play Eating and poor behavior are also related. To further investigate these relationships, logistic regression analysis was conducted to assess the occurrence of anxiety about children's eating habits. Based on previous findings, the child's age and gender were included as control variables, while recognition of eating behaviors (Play Eating, Manners, Picky Eating) served as explanatory variables in the regression model. Estimated odds ratios are listed in Table 4.

The approximate multiple correlation coefficient, a goodness-of-fit index for the model, was $R^2_{M\&Z} = .27$, and the percentage of correct group discrimination in the model was 68.8%. The odds ratio for Picky Eating was significant ($OR = 4.1$, 95%CI [2.8, 6.1]). The results implied that the proportion of parents feeling anxious about their children's eating was about four times higher if their child's Picky Eating score was one point higher in the linear model, given that age, gender, and other eating behaviors were controlled.

The pseudo R-squared, serving as a goodness-of-fit indicator for the model, was $R^2_{M\&Z} = .27$. The model accurately classified the groups, with a success rate of 68.8%. A significant odds ratio was observed for Picky Eating ($OR = 3.85$, 95%CI [2.6, 5.6]), suggesting that the likelihood of parental anxiety about children's eating habits increases approximately four-fold when the Picky Eating score of a child increases by one unit, given that age, gender, and other eating behaviors are held constant.

Table 4 Logistic regression analysis of anxiety related to eating behaviors

Variable	Odds Rate	95% Confidence Interval		VIF
		Low	High	
Age	1.16	.88	1.52	1.06
Gender	1.40	.84	2.32	1.04
Play eating	.85	.58	1.24	1.60
Manners	1.41	.87	2.29	1.52
Picky eating	3.85 **	2.63	5.63	.120
$R^2_{M\&Z}$.274 **			

** $p < .01$, * $p < .05$, + $p < .10$

Note. The criterion value represents the presence of anxiety in the child's eating behavior.

Relationship between anxiety about children's eating habits, social support, and views on childcare

In the preceding correlation analysis, a small yet significant correlation was identified between anxiety regarding children's eating habits and parental attitudes toward childcare. Multiple regression analysis was subsequently performed to explore the relationship between anxiety about young children's eating habits and parents' child-rearing views, as well as to determine whether the availability of social support resources moderates this effect. To streamline the analytical model, the aggregate score from the four measures of social support resources was calculated as the total "Support" score (Mean = 15.47, $SD = 2.73$).

In the multiple regression model, the dependent variables were parents' views on child-rearing, specifically Irritation, Burden, and Fulfillment. Children's age and gender (coded as 0 for male and 1 for female) were included as control variables. Additionally, the total support score and presence of anxiety about children's eating habits (coded as No: 0, Yes: 1) were integrated as explanatory variables, along with their interaction terms. Dummy variables were treated as categorical, and each variable was centered on the mean within the model. To correct any deviations from the assumptions of multiple regression, and reduce the risk of estimation errors, a robust bootstrap estimation method was utilized. The results of the multiple regression analysis are presented in Table 5.

The results indicate that the multiple correlation coefficients for the individual multiple regression analyses pertaining to the three aspects of child-rearing, namely Irritation, Burden, and Fulfillment, ranged from 0.06 to 0.08. According to Cohen (1988), the goodness of fit for each model was small, with R-squared values between 0.02 and 0.13. However, the models demonstrated explanatory power that should not be overlooked.

Table 5 Result of multiple regression analysis on parents' view of child-rearing

	Criteria Value	Irritation	Burden	Fulfillment
Control Value				
Age		-.08 +	-.08	.03
Gender		.05	.08	-.04
Explanatory Variable				
Support		.00	-.02	.22 **
Anxiety in the children's eating (N/Y)		.18 **	.24 **	-.12 *
Support *Anxiety		-.15 **	-.07	.14 *
	R ²	.06 **	.08 **	.07 **

** $p < .01$, * $p < .05$, + $p < .10$

In the analysis of Irritation as a dependent variable, the standardized coefficient for the presence of anxiety about children's eating was significant ($\beta = .18$, 95%CI [-.08, .28]), as was the interaction term ($\beta = -.15$, 95%CI [-.25, -.05]). Regarding Burden, the standardized coefficient for the presence of anxiety about children's eating habits was also significant ($\beta = .24$, 95%CI [.13, .34]). For Fulfillment, the total number of consultations ($\beta = .22$, 95%CI [.11, .35]), the presence or absence of anxiety about young children's eating ($\beta = -.12$, 95%CI [-.21, -.004]), and the interaction term ($\beta = .14$, 95%CI [.01, .27]) were all significant predictors.

In a multiple regression model with interaction terms, the main effect of an explanatory variable is captured by its regression coefficient, assuming that the other variables in the interaction term are averaged (with categorical values set to zero). For instance, when accounting for children's age and gender and normalizing the total support score, parents who expressed anxiety about their children's eating habits tended to have more negative perceptions of parenting. Specifically, these parents were more likely to report feelings of

Irritation and Burden, and less likely to feel Fulfillment, compared to those without such anxieties. Moreover, the total support score also correlated with a sense of parental fulfillment.

Subsequently, given the significance of the coefficient of the interaction term in the model in which Irritation and Fulfillment were the dependent variables, a simple slope analysis was performed. This analysis was based on one standard deviation from the mean, in accordance with the method outlined by Aiken and West (1991). For the variable, Irritation, as depicted in Figure 1, the multiple regression analysis revealed that anxiety about children’s eating habits was a significant predictor when the total Support score was low ($\beta = .55, SE = .13, p < .001$), indicating a strong relationship. However, this relationship was not observed at higher levels of total Support ($\beta = .05, SE = .12, p = .70$), suggesting no significant association under these conditions. Similarly, for the variable, Fulfillment, the multiple regression analysis indicated that anxiety about children’s eating habits was a significant negative predictor when the Total Support score was low ($\beta = .55, SE = .13, p < .001$). However, this relationship was not evident at higher levels of Total Support ($\beta = .05, SE = .12, p = .70$), suggesting that the effect of anxiety diminishes as support increases.

The findings consistently demonstrate that concerns regarding young children’s dietary habits adversely affect parental attitudes toward childcare in contexts of limited support. Conversely, a buffering effect was noted that diminished the impact of diet-related anxiety as the availability of support increased.

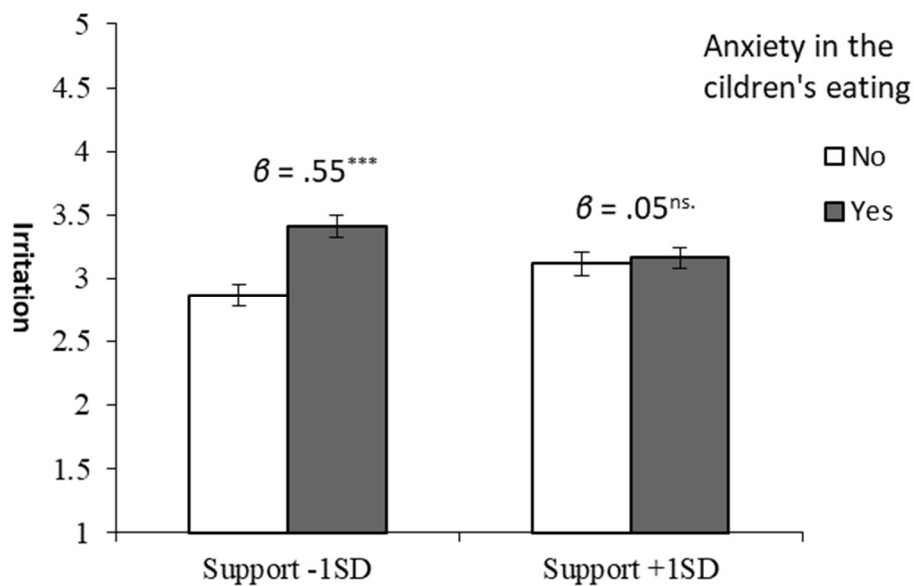


Figure 1 Simple slope analysis of Irritation

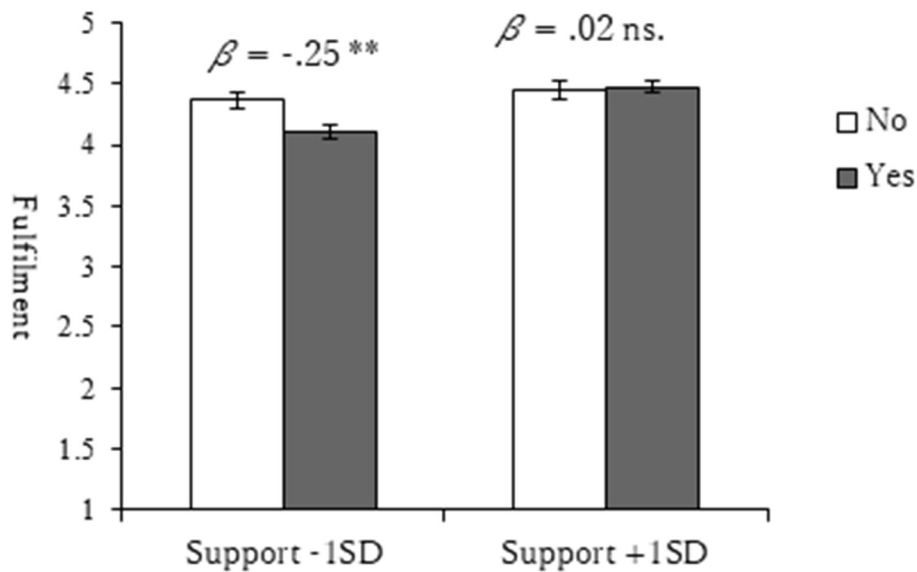


Figure 2 Simple slope analysis of Fulfilment

Conclusions

In this study, a questionnaire survey was conducted among parents to examine the factors influencing their anxiety about young children's eating, in relation to their views on child-rearing and their children's eating behaviors. The results revealed the following.

First, parents' anxiety about their children's eating was related to their children's eating behaviors of picky eating, manners, and play eating (Table 3). Parents who are particular about their children eating in a clean, neat, and well-mannered way are more likely to feel burdened and irritated in relation to child-rearing. In other words, it was suggested that the assumption that they "have to do" something regarding eating may be driving parents into a corner. Therefore, kindergarten and nursery teachers need to view children's development from a long-term perspective and offer advice and support that lightens parents' feelings. This suggests the need for kindergarten and nursery teachers to reaffirm the importance of attending to anxiety about children's eating habits and providing careful support to parents.

Among the eating behaviors that influenced parents' anxiety about young children's eating, picky eating was a particularly strong factor (Table 4). With regard to picky eating, parents' attempts to feed their children with foods they dislike or novel foods often do not go as far as they would like because of the physiological nature of eating. It is thought that, for parents, the worry that their child was not eating the meal they had prepared and that they did not know how to get their child to eat may have led directly to irritation and anxiety.

Second, looking at the relationship between parents' anxiety about young children's eating and their "views on child-rearing," it was demonstrated that anxiety tended to increase "burden" and "irritation" in child-rearing, while reducing "fulfilment" (Table 5). In other words, the results indicate that parents' anxiety about their children's eating does not stop with their children's eating but may extend to their worries over child-rearing.


These relationships were affected differently, depending on whether the parents had people they could consult. It was observed that when parents had someone to talk to, they felt fulfilled in their child-rearing, but when they did not have someone to talk to, their “views on child-rearing” tended to be negative over anxiety about their children’s eating (Figures 1 and 2). This result indicates that having a person with whom parents can consult may help them feel positive about child-rearing, even if they are anxious about young children’s eating.

In particular, as eating is an activity that takes place not only at home, but also in nurseries and kindergartens, teachers may need to be sensitive to parents’ anxiety about their children’s eating habits, and may need to support them.


Finally, we present the limitations of this study. Parents’ anxiety about young children’s eating is related to children’s eating behavior and their views on child-rearing; it was found that even if parents have anxiety about their children’s eating, if they have someone to talk to, they will not feel negative about child-rearing and will feel fulfilled. In future work we will examine, in detail, what kind of actions and words, from whom, and in response to which queries of parents regarding their children’s food would reduce anxiety about young children’s eating, considering that the development of an environment, wherein parents are comfortable with consultations, is an important issue to be addressed.

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