

Correlation between food allergy response capabilities of mothers who raise children with food allergy and the quality of life

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Introduction

Mothers play central roles in the treatments upon their children with food allergies. They are required 'the competence raising children with food allergies (food allergy response capabilities)': "Stress coping", "skills in performing the elimination diet", "gathering information from the healthcare professionals", "knowledge on food allergies", and "husband's cooperation".

Purpose

The objective of this study is to clarify the correlations among food allergy response capabilities of mothers, factors affecting it and quality of life (QOL).

Results

The questionnaire response was obtained from 328 subjects, with a response rate of 50.5%. Among them, 23 subjects were excluded due to missing data. In addition, those with 0 number of removed items in food and those without the description of number of removed food (25 subjects) were excluded, resulting in **280 subjects to be included in the analysis (effective answer rate: 45.0%)**. Mean age of mothers was 33.6±4.6 years and mean age of children was 35.6±19.8 months. Ratio of male and female was 1.7:1. As for working status of the mother, those who answered full-timer were 74 subjects (26.4%), part-timer mothers were 44 subjects (15.7%), and unemployed mothers were 162 subjects (57.9%). Number of children eliminating food (multiple answers) were 255 egg eliminating children (54.6%), 153 milk eliminating children (54.6%), and 78 wheat eliminating children (27.8%), etc. Mean number of food eliminated were 2.3±1.3 foods.

Mean value of food allergy response capabilities was as follows: "Stress coping" 2.96±0.80, "skills in performing the elimination diet" 3.57±0.96, "gathering information from the healthcare professionals" 2.96±0.80, "knowledge on food allergies" 2.96±0.80, and "husband's cooperation" 2.96±0.80 (Table 1).

WHOQOL26 score of the mother was 3.42±0.42. As for the score grouped by the domains, physical domain was 3.55±0.51, psychological domain was 3.41±0.52, social relationships was 3.50±0.56, and environmental domain was 3.32±0.49 (Table 2). From a multivariate regression model (R²=0.49, p<0.001), it was found that mother's QOL consisted of food allergy response capabilities (β=0.31, p<0.001), mother's health condition (β=0.29, p<0.001), stress in daily life except child care (β=-0.24, p<0.001), and family health condition (β=0.13, p<0.05) (Figure 1).

Methods

Subjects were mothers who raised children between the ages of 0-6 years (preschool age) who had been diagnosed by physicians as having a food allergy. A self-recorded questionnaire was distributed and collected via the post. The evaluation period was from September 2010 to March 2011. A total of 650 self-recorded questionnaires were distributed to hospitals with a pediatric allergy outpatient clinic (8 institutions) and general clinics (11 institutions) or pediatricians specialized in allergy (2 institutions).

Questionnaire items included the subject's background such as mother's age, working condition, health condition, allergic disease, children's age, gender, health condition, eliminating foods, consultation facilities, hospital transfer experience, anaphylactic experience, allergic disease apart from food allergy, and the family health condition. In addition, in total 26 items of the Japanese version of the World Health Organization Quality of Life-26 (WHOQOL26) which composed of satisfaction on 4 domains and an added 2-item health condition and QOL subjective evaluation; food allergy response capabilities proposed by Aika et al., which consisted of 5 factors and 17 items (Cronbach's α coefficient=0.81); and the effects of food allergy on daily life, were used for evaluation.

All statistical analyses were conducted using statistical analysis software IBM SPSS ver.19.0. Pearson's correlation was used to analyze the correlation between food allergy response capabilities and QOL. In addition, multiple regression analysis (stepwise method) was carried out with QOL as the dependent variable and food allergy response capabilities, the effect of food allergy on daily life, health condition, eliminating foods, anaphylactic experience, and hospital transfer experience as the independent variables.

Ethical considerations: A written explanation on the study objectives and significance, methods, voluntary based participation, anonymity, and privacy protection were enclosed in the survey, and the written consent was received via post. This study was proceeded following an approval from the Kawasaki University of Medical Welfare Ethics Committee.

Table 1 Food Allergy Response Capabilities

(n=280)

Items of Sub-scale (Cronbach's coefficient alpha)	Mean	Standard Deviation
Overall (α=0.81)	3.42	0.55
1. Stress coping(α=0.74)	2.96	0.80
I can cope with my stress well.	2.90	0.95
I can rest.	2.82	1.08
I think I am coping with my child's food allergies well.	3.17	0.93
2. Skills in performing the elimination diet (α=0.89)	3.57	0.96
It's a burden to plan a menu in consideration of my child's restricted diet (Reverse).	3.59	1.13
It's a burden to cook in consideration of my child's restricted diet (Reverse).	3.59	1.10
It is difficult to plan the menu in consideration of my child's restricted diet (Reverse).	3.46	1.14
It is difficult to cook in consideration of my child's restricted diet (Reverse).	3.64	1.06
3. Gathering information from the healthcare professionals(α=0.77)	3.45	1.03
I can ask questions to the nurse about my child's food allergies.	3.37	1.29
I can ask questions to the nutritionist about my child's food allergies.	3.01	1.41
I can ask questions to the attending physician about my child's food allergies.	3.97	0.97
4. Knowledge of food allergies (α=0.74)	3.44	0.74
I know there are alternative foods I can use when cooking on my child's restricted diet.	3.57	1.07
I know what to do when uncomfortable symptoms, such as rash, itchiness, difficulty breathing, vomiting, and diarrhea occur within 1-2 hours after my child eats food he/she is allergic to.	3.05	1.23
I understand how to read allergy labels displayed on food products.	4.06	0.91
I am familiar with what kind of illness food allergies is.	3.75	0.87
I understand how the restriction/removal of foods cause allergy from diet is carried out medically.	2.75	1.14
5. Husband's cooperation (α=0.75)	3.70	1.00
My husband understands what kind of illness food allergies is.	3.70	1.05
My husband cooperates in the raising of our child with food allergies.	3.70	1.17

Table 2 Correlation between food allergy response capabilities and QOL (WHOQOL26)

	Mean ± Standard Deviation	Food Allergy Response Capabilities	Stress coping	Skills in performing the elimination diet	Gathering information from the healthcare professionals	Knowledge of food allergies	Husband's cooperation
QOL	3.42±0.42	0.51***	0.59***	0.33***	0.21***	0.23***	0.28***
physical	3.55±0.51	0.38***	0.47***	0.31***	0.13*	0.13*	0.13*
psychological	3.41±0.52	0.46***	0.56***	0.28***	0.18**	0.20**	0.27***
social relationships	3.50±0.56	0.38***	0.43***	0.25***	0.18**	0.13*	0.25***
environmental	3.32±0.49	0.47***	0.47***	0.26***	0.24**	0.25***	0.27***

Pearson's coefficient of correlation r (*p<0.05, **p<0.01, ***p<0.002)

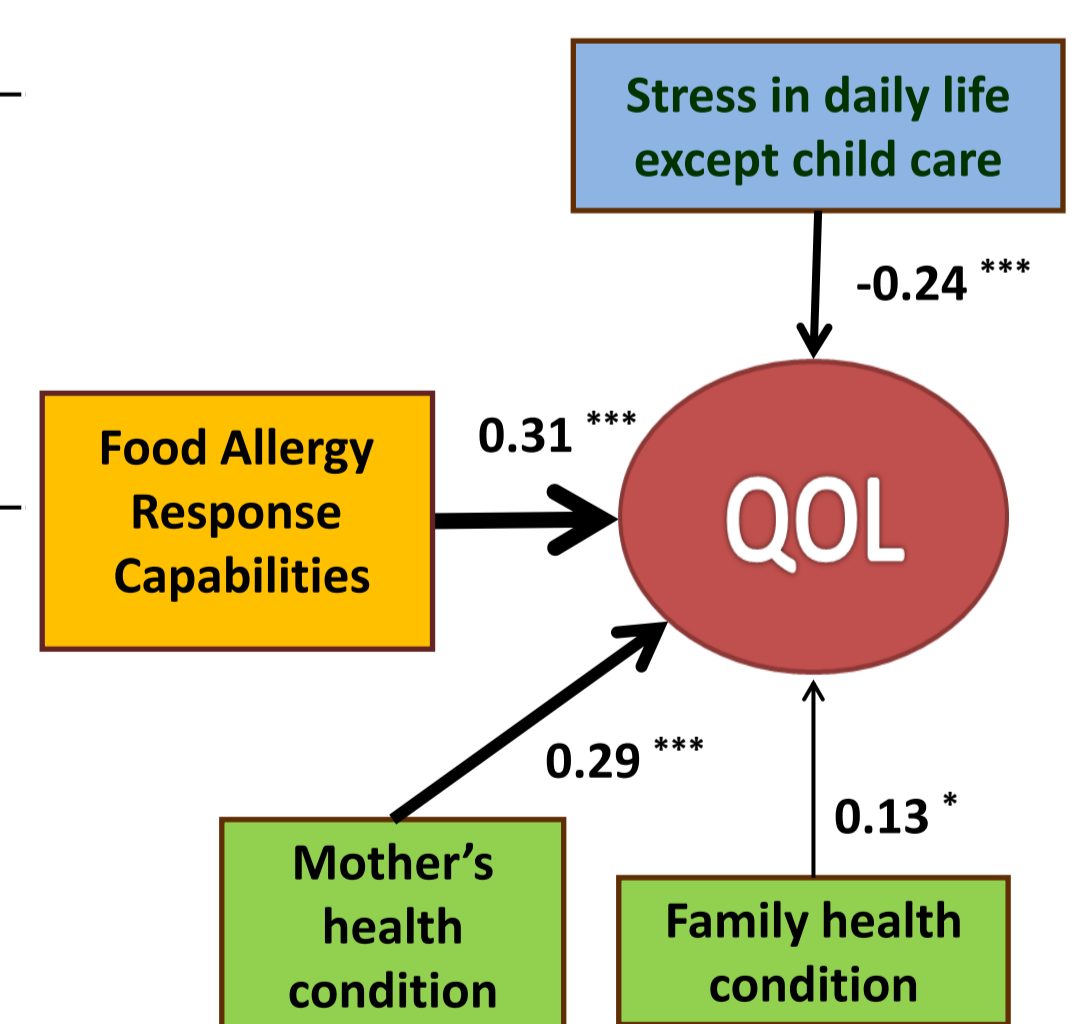


Figure 1 Multiple regression analysis of QOL, Food Allergy Response Capabilities, Mother's health condition, Family health condition, Stress

Table 3 Correlation between food allergy response capabilities and daily activity

	Food Allergy Response Capabilities	Stress coping	Skills in performing the elimination diet	Gathering information from the healthcare professionals	Knowledge of food allergies	Husband's cooperation
Limitation of going out	-0.22***	-0.29***	-0.39***	-0.12	0.12*	0.03
Limitation of eating out	-0.15*	-0.20**	-0.39***	-0.09	0.14*	0.17**
Limitation of travel	-0.14*	-0.20***	-0.37***	-0.14*	0.20***	0.16**
Stress in child care	-0.48***	-0.39***	-0.65***	-0.20***	-0.07	-0.05
Stress in daily life except child care	-0.34***	-0.39***	-0.28***	-0.17**	-0.10	-0.13*

Pearson's coefficient of correlation r (*p<0.05, **p<0.01, ***p<0.002)

Conclusion

In order to prevent reduction of mother's QOL, it is important to improve food allergy response capabilities as early as possible following the diagnosis. It is important for nurses to have correct knowledge on food allergy, to understand the situation and feelings of mothers, to deliver appropriate information, to introduce individually-adjusted menus as well as possible eating-out places, to provide practical information supply in cooperation with the dietician, to draw mother's stress coping capability, to ensure cooperation between the mother and the husband, to recommend the presence of the husband during consultation, and to introduce the importance of husband's cooperation for child care with food allergy using pamphlets.