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Social-Emotional Characteristics of Young Children according to Presence of Atopic Dermatitis Symptoms

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Abstract: The purpose of this study is to investigate whether there are differences in children's problem behavior, peer interaction, and school readiness according to the presence of atopic dermatitis symptoms. The subjects of this study were 232 children who had atopic dermatitis symptoms, 1270 children who did not have atopic dermatitis symptoms, and a total of 1502 children among the data for children aged six years from the Children's Panel Study. As the research instruments, the children's problem behavior scale, peer interaction scale, and school readiness scale were used. Research results showed that there were significant differences between groups in emotional responsiveness, anxiety/depression, and physical symptoms, attention problem, and aggressive behavior. The score of problem behavior in a group with atopic dermatitis symptoms was higher than that of the no-symptoms group. On the other hand, there was no difference in peer interaction and school readiness according to the presence of atopic dermatitis symptoms. The results of this study can be used as basic data for coping with and guiding the psychosocial developmental problems of children with symptoms of atopic dermatitis in advance.

Keywords: *atopic dermatitis symptoms; internalization of problem behavior; externalization of problem behavior; young children peer interaction; school readiness*

1. Introduction

Atopic dermatitis occurs from infancy and refers to chronic recurrent eczema disease accompanied by severe itching, erythema, and scale [1]. The causes of atopic dermatitis include genetic background, food allergies, immunological abnormalities, skin barrier abnormalities, environmental factors, social factors, and various causative factors such as psychological relationships. As a result of a survey conducted by the Korea Health Insurance Corporation, between 2010 and 2015, it was reported that a total of 6.21 million patients treated with atopic dermatitis in Korea, of these, 4.1 million children (ages 0-19) and 21.2 million adults (ages 20 and over), as of 2015, about 410,000 (42.6%) aged under nine years, 180,000 (18.7%) in teens, and 110,000 (11.5%) in their 20s (9 years old), the younger, the more atopy patients, and that the number of patients decreases with age [2].

For young children, diseases such as atopic dermatitis develop from childhood by being exposed to environmental factors in a state in which the protective ability to protect the body is immature. As a result, children with atopic dermatitis may not adapt to their living environment and may exhibit various maladaptive behaviors. Children with atopic dermatitis develop anxiety, depression, interpersonal dermatitis, distraction, aggression, and neurosis, and severe scratching behavior related to itching and continuous crying behavior appear. In general, while acute diseases have problems with adaptation, chronic diseases such as atopic dermatitis can affect personality development problems. The group of child patients with atopic dermatitis showed more overt problem behaviors such as aggression, attention deficit, and impulsivity than the control group [3,4], behavioral and emotional problems are more severe than healthy children [4], and in particular, attention disorder is known to negatively affect interpersonal relationships and anxiety [5].

On the other hand, Choi et al. [6] reported that when the problem behavior of 24-month children with atopic dermatitis was measured, attention was higher than that of normal children. According to Cheon [7], in a study of 165 children who had experienced atopic dermatitis aged 5 years old, boys who experienced atopic dermatitis were found to have a higher level of problem behavior than those

who did not experience atopic dermatitis, and in the case of girls, no difference was reported. In the case of children, some studies show that their results are contrary to those of previous studies. As such, psychosocial problems arise in the case of children with atopic dermatitis, a chronic disease, and despite the demand for guidance and support for this, it is true that compared to studies on elementary higher school years and middle school and high school students with atopic dermatitis disease, research on social and emotional characteristics related to atopic dermatitis symptoms in children is insufficient.

Therefore, this study aims to examine whether there are differences in problem behavior, .peer interaction, and school readiness in terms of children's social and emotional development according to the presence of children's atopic dermatitis symptoms. The research questions according to the purpose of this study are as follows. Research question: Are there differences in problem behavior, peer interaction, and school readiness according to the presence of children's atopic dermatitis symptoms?

2. Research Method

Research subjects, research instruments, and data analysis methods are as follows.

2.1. Research Subjects

To examine the longitudinal development process of domestic children, this study used the 7th year data of 6-year-old children (age of 72-79 months) in 2014 among the Panel Studies on Korean children (PSKC) through establishing a large-scale panel for children born in 2008. The subjects were 1502 children who responded to the presence or absence of atopic dermatitis symptoms, and of them, 232 children (15.4%) who have had atopic dermatitis symptoms till now after birth, and there were 1270 children (84.6%) who have not had atopic dermatitis symptoms, comprising 767 boys (51.1%) and 735 girls (48.9%).

Table 1. Research Subjects

Division	Presence of atopic dermatitis symptoms (from birth to present)					
	Presence		Absence		Sum	
	Frequency	%	Frequency	%	Frequency	%
Male	125	53.9	642	50.6	767	51.1
Female	107	46,1	628	49.4	735	48.9
Sum	232	100.0 (15.4)	1270	100.0 (84.6)	1502	100.0 (100.0)

2.2. Research Instruments

2.2.1. Child Behavior Checklist

To measure the negative aspects of children's psycho-social development, this study used the CBCL 1.5-5 questionnaire (Child Behavior Checklist for Ages 1.5-5) [8], a tool for measuring problem behavior used in the Korean Children's Panel. Based on the degree to which parents, show behaviors suggested by children in 100 questions, CBCL is supposed to be rated on a 3-point scale of 0 (not at all) to 2 (something like that often or a lot). In this study, 36 items of internalization problem behavior and 24 items of externalization problem behavior are used. The internalization problem behavior is composed of sub-domains of emotional responsiveness (9 items), anxiety/depression (8 items), physical symptoms (11 items), and shrinking (8 items). The externalization problem behavior is composed of attention problems (5 items) and aggressive behavior (19 items).

Table 2. Configuration and reliability of children problem behavior scale

Variable	Sub-variable	Measurement variable	Number of items	Reliability
Problem behaviors	Internalization	Emotional responsiveness	13	.74
		Anxiety/depression	8	.72
		Physical symptoms	11	.57
		Shrinking	8	.65
	Externalization	Attention problems	5	.62
		Aggressive behaviors	19	.87
Total			60	.93

2.2.2. Interactive Peer Play Scale

To measure children's peer interaction, this study used the scale which Choi & Shin [10] validated and reconstructed from the Penn Interactive Peer Play Scale (PIPPS) items developed by Fantuzzo et al. [9]. This scale used in the Korean Children's Panel (PSKC) survey consists of three sub-areas such as play interaction (9 questions), the propensity to see whether the pro-social disposition and play proceed smoothly in the interaction with peers, interference with play (13 questions) as a question to measure the degree of expressing aggressive and negative emotions and play break (8 items), which measures the degree of shrinking or being ignored or rejected by others, and has a total of 30 items.

Table 3. Configuration and reliability of peer interaction scale

Measurement variable		Number of items	Score range	Reliability
Peer interaction	Play interaction	9	9~36	.81
peer interaction	Interference with play*	13	13~52	.86
peer interaction	Play break*	8	8~32	.89
Total		30	30~120	.83

* Reverse item

2.2.3. School Readiness Scale

To measure school readiness of preschool age children, this study used the scale that the Korean Children's Panel researchers adapted from Murphey and Burns's school readiness scale [11]. It consists of four sub-factors such as social-emotional development (6 items), attitude toward learning (8 items), communication (3 items), and cognitive development and general knowledge (5 items).

Table 4. Configuration and reliability of the school readiness scale

	Measurement variable	Number of items	Score range (total score)	Reliability
School readiness	Social-emotional development	6	6~24	.93
	Attitude toward learning	8	8~32	
	Communication	3	3~12	
	Cognitive development and general knowledge	5	5~20	
Total		22	22~88	

2.3. Data Analysis Method

Descriptive statistics analysis was performed using SPSS 25.0 to calculate statistics on the demographic characteristics of the research variables, and an independent sample t-test was performed to verify the difference between variables.

3. Results

The results of the analysis of the differences in problem behavior, peer interaction, and school readiness according to the presence of children's atopic dermatitis symptoms are as follows.

3.1. Differences in Children's Problem Behaviors According to the Presence of Atopic Dermatitis Symptoms

In the result of comparing the difference in the factors of problem behavior internalization of children according to the presence or absence of atopic dermatitis symptoms, there were significant differences in emotional responsiveness (t=2.60), anxiety/depression (t=4.64), physical symptoms (t=2.47), and a total score of internalization (t=3.69) (p< .05). It was found that there was no difference in shrinking (t=1.96, p< .05). It can be explained that in the case of children with atopic dermatitis symptoms, the level of problem behavior internalization is higher than that of no-symptom children with atopic dermatitis.

In the result of comparing the difference in externalization factors of children's problem behavior according to the presence of atopic dermatitis symptoms, the attention problem (t=3.00), aggressive behavior (t=2.52), and a total score of externalization (t=2.86) all showed significant differences (p<.05). It can be explained that in the case of children with atopic dermatitis symptoms, the level of problem behavior externalization is higher than that of no-symptom children.

Table 5. Differences in children's problem behaviors according to the presence of atopic dermatitis symptoms

Variables	Division	Presence of atopic dermatitis symptoms (*N*=1499)				*t*
		Presence (*N*=232)		Absence (*N*=1267)		
		M	*SD*	*M*	*SD*	
Internal-ization	emotional responsiveness	2.08	2.38	1.65	2.01	2.60*
	anxiety/ depression	3.08	2.33	2.32	2.04	4.64***

	physical symptoms	1.53	1.98	1.20	1.52	2.47*
	shrinking	1.53	1.64	1.31	1.63	1.96
	Sum	8.22	6.82	6.47	5.82	3.69***
External-ization	attention problem	1.28	1.32	0.99	1.30	3.00**
	aggressive behavior	5.29	4.49	4.49	4.42	2.52*
	Sum	6.57	5.39	5.49	5.27	2.86**
Total		23.70	16.66	19.16	15.22	4.12***

*$p<.05$. **$p<.01$ ***$p<.001$

3.2. Differences in Children's Peer Interactions According to the Presence of Atopic Dermatitis Symptoms

The play interaction, interference with play, and play break in children's peer interaction showed no difference between the children group with atopic dermatitis symptoms and no-symptom children group (p>.05).

Table 6. Differences in children's peer interactions according to the presence of atopic dermatitis symptoms

Variables	Division	Presence of atopic dermatitis symptoms (*N*=1134)				*t*
		Presence (*N*=173)		Absence (*N*=961)		
		M	*SD*	*M*	*SD*	
Play interaction		3.10	0.43	3.07	0.46	-0.60
Interference with play*		3.91	0.52	3.95	0.49	-0.86
Play break*		4.33	0.61	4.36	0.58	-0.74
Total		3.78	.40	3.80	.39	-0.50

* Reverse item

3.3. Differences in Children's School Readiness According to the Presence of Atopic Dermatitis Symptoms

The school readiness of the children group with atopic dermatitis symptoms showed no difference from that of the no-symptom children group with atopic dermatitis symptoms (t=-0.74, p>.05)

Table 7. Differences in children's school readiness according to the presence of atopic dermatitis symptoms

Division	Presence of atopic dermatitis symptoms (*N*=1134)				*t*
	Presence (*N*=173)		Absence (*N*=961)		
	M	*SD*	*M*	*SD*	
School readiness	3.47	0.42	3.49	0.41	-0.74

4. Discussion

This study examined whether there is a difference in children's psycho-social development according to the presence or absence of children's atopic dermatitis symptoms.

In the results of comparing the difference in the factors of problem behavior of young children according to the presence or absence of atopic dermatitis symptoms, it was found that there were significant differences in internalization and externalization of problem behavior. The score of the problem behavior of children with atopic dermatitis symptoms was higher than that of no-symptom children. These results are consistent with that of studies showing that pediatric atopic dermatitis patients have more internalization problems and externalization problems such as aggression, impulsivity, and attention compared to the normal control group [2,6,7].

Second, the sub-factors of peer interaction according to the presence or absence of atopic dermatitis symptoms, such as play interaction, play obstruction, and play break, showed no difference between groups. This result is, in cases with not severe atopic dermatitis, consistent with the results of studies of not having difficulty with friendship, with the results that the peer interaction score of atopic dermatitis adolescents is not low and has no significant effect on their life satisfaction [3,4,13,14].

Third, in the case of school readiness of preschool age children, it was found that there was no difference according to the presence or absence of atopic dermatitis symptoms. These results are inconsistent with the results showing that atopic dermatitis affects children's emotional development and shows dysfunction in mind and body [12], and also inconsistent with the findings [13] that atopic dermatitis negatively affects school-age children's companionship. In childhood, the onset of atopic dermatitis may be in the acute phase, and as the level of interest in appearance or self-identity is not established, in childhood, atopic dermatitis may have a small effect on peer interaction [6].

Considering the studies on atopic dermatitis work in combination with children's developmental characteristics, immunity, companionships, learning, and family relations, and environmental factors, it needs to use research integrated model in the further study [15,16]. The results of this study can be used as basic data for coping with and guiding the psychosocial developmental problems of children with symptoms of atopic dermatitis in advance.

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