

## The family impact of childhood atopic dermatitis: Scoping review

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### 1. Introduction

Atopic dermatitis is a chronic, pruritic inflammatory skin disease occurring most frequently among children. Specifically, roughly 17% of all American children (Eichenfield et al., 2014; Laughter, Istvan, Tofte, & Hanifin, 2000) have atopic dermatitis. In Japan, 12.8% of 4-month-old, 9.8% of 18-month-old, and 13.2% of 3-year-old children, have a diagnosis of atopic dermatitis (Katayama et al., 2014), and the incidence appears to be increasing. The adverse consequences of atopic dermatitis on children have been well-documented (Chamlin, 2006; Chamlin et al., 2005; Chamlin, Frieden, Williams, & Chren, 2004; Daud, Garralda, & David, 1993; Ricci, Bendandi, Bellini, Patrizi, & Masi, 2007). Due to illness, it influences not only the physical aspect among children but also on the psychological aspect. (Chamlin et al., 2004; Chamlin et al., 2005; Daud et al., 1993). In addition, atopic dermatitis also affects members of the family. There is some negative effect of a child with atopic dermatitis compared to a healthy child (Tsuzuki et al., 2006). Furthermore, Chamlin et al. (2005) reported that the disease's condition influenced the sleep quality of both parents and child. Co-sleeping because of the skin condition was reported by 30% of families, and most of these parents (66%) were bothered by the co-sleeping (Chamlin et al., 2005). In Moore, David, Murray, Child, and Arkwright (2006), the parents of children with atopic dermatitis had greater sleep disturbance compared to parents of children with asthma. Furthermore, the severity of parents' sleep disturbance had a positive correlation with mothers' anxiety and depression, and fathers' anxiety. Preliminary research has also suggested that atopic dermatitis places a relatively large financial burden on families (Carroll, Balkrishnan, Feldman, Fleischer, & Manuel, 2005; Ricci, Bendandi, Pagliara, Patrizi, & Masi, 2006; Su, Kemp, Varigos, & Nolan, 1997). Given that atopic dermatitis seems to make parenting an even more difficult process, it is assumed that parents and children are more likely to develop dysfunctional relationships. This has prompted the suggestion that psychological support be offered as part of routine management of atopic dermatitis (Howlett, 1999).

Taken together, these previous studies indicate that atopic dermatitis has a variety of impacts on the families of children with atopic dermatitis as well as the children themselves. Furthermore, these studies and their associated scales for assessing the quality of life(QoL) of

the children with atopic dermatitis and their parents have tended to focus on these two groups as separate entities—at present, there have been no studies examining children and parents as a whole unit (i.e., a family). Furthermore, no study has yet analyzed the impact of the disease on the family in a systematic way.

Therefore the purpose of this study was to analyze in detail what “the family impact of childhood atopic dermatitis” might be. We conducted a scoping review based on the steps of “concept analysis.” Throughout the review, we determined the concept's defining attributes, antecedents, and consequences, and by the greater understanding of these, potentially lead to better development of nursing interventions and childrearing support. Furthermore, we considered the potential for improving the QoL of patients with atopic dermatitis, who, as noted above, are expected to increase in the future.

### 2. Concept analysis

Concept analysis refers to the method of unfolding, exploring, and understanding of a concept for the purposes of concept development, delineation, comparison, clarification, correction, identification, refinement, and validation (Morse, Hupcey, Mitcham, & Lenz, 1996; Rodgers & Knafel, 2000; Walker & Avant, 2005). Ultimately, a concept analysis produces a precise operational definition of a given concept (Walker & Avant, 2005). We chose Walker and Avant's framework for concept analysis, which is based on Wilson's original concept analysis method (Wilson, 1963). An outline of the eight steps and whether and how they were applied in this concept analysis is shown in Table 1. Walker and Avant (2005) proposed that the purpose of a concept analysis is to determine the structure and function of a concept. They consolidated the concept analysis process into eight steps (Walker & Avant, 2005). The main issue of this study, “the family impact of childhood atopic dermatitis,” is too abstract for conducting a concept analysis, so it is not appropriate as a “concept.” However, we considered the steps of analysis and how to draw the concept model very useful.

### 3. Review methods

We adopted the scoping study framework which Arksey and

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**Table 1**  
Walker and Avant concept analysis steps.

Steps	Used in this concept analysis	
(1) Select a concept	Yes	Literature review
(2) Determine the aims or purposes of analysis	Yes	Research question
(3) Identify all uses of the concept that you can discover	Yes	Literature review
(4) Determine the defining attributes	Yes	Literature review
(5) Identify a model case	No	Not applicable
(6) Identify the borderline, related, contrary, invented, and illegitimate cases	Yes	Identify the related cases
(7) Identify antecedents and consequences	Yes	Literature review
(8) Define empirical referents	Yes	Result of this study

O'Malley suggested as a review method (Arksey & O'Malley, 2005).

Stage one of the framework is “identifying the research question.” We identified the research question; what “the family impact of childhood atopic dermatitis” is. In order to pursue this research question, a scoping review was conducted with reference to the steps of concept analysis.

Stage two of the framework is “identifying the relevant studies.” To limit the scope of the review, agreement was reached among co-authors on the prerequisites for search, such as target age, database, keywords and languages. Young children (preschoolers) with atopic dermatitis and their families were focused on because we thought elementary school children have other developmental tasks, and determined that it is difficult to analyze all of these at the same time. Piaget contended that children undergo four stages of cognitive development: namely, the sensorimotor, preoperational, concrete operational, and formal operational stages (Inhelder & Piaget, 1958). We focused on children in the preoperational stage, wherein children can use symbols to represent objects but are unable to think logically. We believed that caring for children with disease in this stage is monumentally difficult for parents, as the child is unfamiliar with the nature of his or her condition. We did not consider the sensorimotor stage (birth to 2 years of age), as raising a child during that stage is presumably difficult regardless of whether the child has a condition, given that it is marked by development of language comprehension and the concept of self and the ability to explore one's environment. Data were collected from literature in PubMed published after January 1, 2000. Pubmed is a search engine of MEDLINE, which is the database of life sciences and biomedical topics, and is a huge database containing more than 20 million pieces of literature and books. MEDLINE has a unique system in which each reference to the medical literature is indexed under controlled vocabulary called Medical Subject Headings (MeSH) (Coletti & Bleich, 2001). Therefore, we thought that Pubmed would be a good means to reach the target issues because of MeSH, as it is appropriate and sufficient to collect literature in which we are interested. Specifically, we searched the database using the keywords “atopic dermatitis” (which yielded 1813 hits), “family” (35,492 hits), and “atopic dermatitis and family” (305 hits). We specified that only journal articles and abstracts be included, and that articles were featured preschool children (i.e., those aged 2–5 years) and written in English. Furthermore, eight sources (three in English, five in Japanese) were obtained through a manual search. We also searched in the same conditions on the database other than the Pubmed just to be sure, but the literature we were interested in was consistent.

Stage three of the framework is “Study selection.” We then reviewed the titles and abstracts of the retrieved sources, and excluded those that were unrelated to the family impact of childhood atopic dermatitis. A total of 37 sources were considered as objects of analysis.

Stage four of the framework is “Charting the data.” Using the Excel we summarized 37 literatures in the chart.

Stage five of the framework is “Collating, summarizing and reporting the results.” In this stage, we used the method of concept

analysis proposed by Walker and Avant mentioned above. The attributes of the concept were identified from the literature. The identification procedure was as follows: the 37 pieces of literature to be analyzed are designed as quantitative studies, using several measures as research tools. The domain and subdomain of the scales which were used in the literature were considered to be attributes of concept. For scales without domain and subdomain, the question items were coded and placed into these attributes. The concept was then created depending on the degree of abstraction and commonality of the codes. Specifically, after coding the identified attributes, we classified qualitatively into categories and subcategories in accordance with their degree of abstraction.

The same procedure was used to identify the antecedents (phenomena occurring prior to the concept) and consequences (phenomena occurring as a result of the concept). This led to the creation of the concept model.

To ensure objectivity, two researchers versed in adult and pediatric nursing analyzed the target literature respectively and extracted codes considered as concept attributes. As a result, the concept attribute matched at a rate of 66.7%. In the cases of disagreement, the researchers continued discussing the attribute until reaching a consensus in order to ensure the reliability of the coding.

## 4. Results

### 4.1. Select a concept

As we pointed out in the introduction, it is important to analyze in detail what “the family impact of childhood atopic dermatitis” is: raising a child with atopic dermatitis influences both the individual with the disease and the overall functioning of the family and relations among family members (Yamaguchi, Ishiguro, Asano, Fujimaru, & Yamada, 2011). It should be noted that since this study is a scoping review, “the family impact of childhood atopic dermatitis” was chosen as a main issue instead of a “concept.” Clarifying this main issue may help provide insight into useful approaches to childcare assistance and interventions that can help families of children with atopic dermatitis in the future. In particular, attention should be paid to the state of family systems and the subjective feelings of those families in order to offer them better support.

### 4.2. Determine the aims or purposes of analysis

We sought to clarify the impact of atopic dermatitis on both the children with atopic dermatitis and their families; we considered not only the physical impacts, but also the emotional ones. This would help in clarifying areas of focus for nursing intervention and childrearing support. Importantly, delineating this concept will help in judging the necessity of a nursing intervention or childrearing support by determining its impact on the family, rather than merely on the severity of the atopic dermatitis.

### 4.3. Identify all uses of the concept that you can discover

When considering the concept of “family,” in particular, we noted various definitions in various fields. The *Oxford English Dictionary* defines “family” as “a group of people consisting of one set of parents and their children, whether living together or not. In wider sense: any group of people connected by blood, marriage, adoption, etc. Also: a pair of animals and their young.” In contrast, early theorists in family social science (Burgess & Locke, 1953) adopted the following definition of “family”: “The family is a group of persons united by ties of marriage, blood, or adoption, constituting a single household; interacting and communicating with each other in their respective social roles of husband and wife, mother and father, son and daughter, brother and sister; and creating and maintaining a common culture.” Alternatively, in

“Family Health Care Nursing: Theory, Practice and Research,” the family refers to “two or more individuals who depend on one another for emotional, physical, and economical support. The members of the family are self-defined” (Kaakinen, Coehlo, Steele, Tabacco, & Hanson, 2014). Based on these definitions, we regarded the family as the most basic societal group, comprising children with atopic dermatitis, parents, siblings, grandparents, etc. In other words, we thought that the above definition from the *Oxford English Dictionary* was most applicable.

Regarding the “impact” on the family, the *Oxford English Dictionary* offers the following definition: “The act of impinging; the striking of one body against another; collision. Chiefly in Dynamics, in reference to momentum. Now commonly the effective action of one thing or person upon another; the effect of such action; influence; impression...” Because our aim was to determine how the child’s condition has an impact on children with atopic dermatitis and their families and the consequences of this impact, we drew on the second definition of the impact from the *Oxford English Dictionary*.

#### 4.4. Determine the defining attributes

All of the analyzed literature were quantitative studies or described the development of scales or instruments for quantifying the impact of atopic dermatitis on QoL of family members and children. As noted above, the domains/subdomains of the scales describing the impacts of atopic dermatitis on affected children and their families were treated as attributes defining the concept. Most studies divided the various impacts on the family into two domains: child and parent/caregiver (hereafter, parent). Thus, we employed these domains as well.

##### 4.4.1. Child domain

Of the literature analyzed, 14 sources (37.8%) (Beattie & Lewis-Jones, 2006; Chernyshov, 2009, 2012; Chinn, Poyner, & Sibley, 2002; Gånemo, Svensson, Lindberg, & Wahlgren, 2007; Ho et al., 2010; Holm, Esmann, & Jemec, 2006; Jiráková, Vojáčková, Göpfertová, & Hercogová, 2012; Lewis-Jones, Finlay, & Dykes, 2001; Monti et al., 2011; Ricci et al., 2007; Schuttelaar, Vermeulen, Drukker, & Coenraads, 2010; Son & Lim, 2014; Van Valburg et al., 2011) used the Infants’ Dermatitis Quality of Life Index (IDQOL), developed by Lewis-Jones et al. (2001). The IDQOL is a questionnaire completed by parents of children with atopic dermatitis aged 0–4 years, which specifically measures the impact of atopic dermatitis on the infant. A higher score on this scale indicates a greater impact of atopic dermatitis on the infant’s QoL. Nine sources (24.3%; Aziah, Rosnah, Mardziah, & Norzila, 2002; Chinn et al., 2002; Gånemo et al., 2007; Grillo, Gassner, Marshman, Dunn, & Hudson, 2006; Ho et al., 2010; Jiráková et al., 2012; Monti et al., 2011; Schuttelaar et al., 2010; Weber et al., 2008) used the Children’s Dermatology Life Quality Index (CDLQI) among children of various ages. Developed by Lewis-Jones and Finlay (1995), the CDLQI is a questionnaire aimed at assessing the atopic-dermatitis-related QoL of children aged 4–16 years; however, as our target age capped at 4 years, we did not include the item associated with school life as an attribute. Neither the IDQOL nor the CDLQI was divided into domains; thus, we coded each of the 10 items comprising each scale. Two sources (5.4%; Chamlin et al., 2005; Neri et al., 2012) used the Childhood Atopic Dermatitis Impact Scale (CADIS), which was developed by Chamlin et al. (2005). The CADIS divides the child domain of impacts into two subdomains: “symptoms” and “activity limitation/behaviors.” These two subdomains were used as concept attributes in the current analysis.

We also identified other attributes from the sources that did not use a scale or instrument (Lewis-Jones et al., 2001; Sarkar et al., 2004; Shani-Adir, Rozenman, Kessel, & Engel-Yeger, 2009), including “sleep,” “sensitivity,” “intelligence,” “anxiety,” “depression,” and “feeling miserable.” Altogether, the attributes of child domain were consolidated into four categories: “symptoms,” “daily life,” “activity limitations,” and “emotions.”

##### 4.4.2. Symptoms

This category refers to the symptoms exhibited by the child with atopic dermatitis. The subcategories were “condition of the skin” and “sleep.” The “condition of the skin” showed the child’s symptoms such as itchy, sore, or painful. These symptoms coincide with those of pruritus and eczema, which are cited as typical features of atopic dermatitis in the Guidelines of Care for the Management of Atopic Dermatitis (Eichenfield et al., 2014). The “sleep” subcategory, on the other hand, refers to how the condition leads to greater difficulty in sleeping at night and lower quality of sleep. This symptom of atopic dermatitis has been substantiated by previous studies (Charman, Venn, & Williams, 2004).

##### 4.4.3. Daily life

This category refers to the routine care for and activities of children with atopic dermatitis, with subcategories of “meal,” “bathing,” “treatment,” and “choice of clothes.” Note that treatment of atopic dermatitis itself is considered part of routine care, as is bathing. Bathing in particular is required for skin care, but a rise in body temperature can aggravate this condition, which makes bathing difficult for children with atopic dermatitis. Another aspect of daily life is choosing the appropriate clothes and meals to prevent the child from coming into contact with allergens, and thus exacerbating the symptoms.

##### 4.4.4. Activity limitations

This category refers to how atopic dermatitis prevents the child from taking part in certain activities, such as joining in play or sports and participating in certain family activities. It is important to note that, for children, play is not simply for amusement. Rather, it is an important means of promoting growth and development.

##### 4.4.5. Emotions

This category contained two subcategories: “emotions related to the reaction with others” and “emotions related to the child’s symptoms.” In other words, the emotions of caregivers and affected children are not limited to merely discomfort or suffering as a result of symptoms but also include others’ reactions to the child’s condition. The subcategory of “emotions related to the reaction with others” is related to the concept of stigma. Goffman (1963) defined three main types of stigma: “abominations of the body”; “blemishes of individual character”; and “the tribal stigma of race, nation, and religion.” Goffman (1963) posited that each type had the same features: “an individual who might have been received easily in ordinary social intercourse possesses a trait that can obtrude itself upon attention and turn those of us whom he meets away from him, breaking the claim that his other attributes have on us.” Scambler and Hopkins (1986) categorized stigma into “felt stigma” and “enacted stigma.” Drawing on this framework, Pitchforth et al. (2011) conducted a qualitative study of parents of children with a nut allergy and found that parents experienced both types of stigma, whereas the affected child experienced “enacted stigma,” which made it difficult for them to have lunch at school. We presumed that the emotions related to reactions of others reflect this type of stigma.

##### 4.4.6. Parent domain

Eighteen sources (48.6%; Aziah et al., 2002; Al Shobaili, 2010; Balkrishnan, Housman, Carroll et al., 2003; Balkrishnan, Housman, & Grummer, 2003; Balkrishnan et al., 2003; Beattie & Lewis-Jones, 2006; Ben-Gashir, Seed, & Hay, 2002; Chernyshov, 2009, 2012; Chinn et al., 2002; Gånemo et al., 2007; Ho et al., 2010; Jiráková et al., 2012; Lewis-Jones et al., 2001; Monti et al., 2011; Ricci et al., 2007; Ricci, Bendandi, Aiazzi, Patrizi, & Masi, 2009; Schuttelaar et al., 2010) used the Dermatitis Family Impact (DFI) questionnaire developed by Lawson, Lewis-Jones, Finlay, Reid, and Owens (1998) to measure the QoL impact of atopic dermatitis on families. The DFI questionnaire was developed through qualitative interviews with parents of children with atopic dermatitis. As the DFI questionnaire is not divided into domains, we

coded each item in the current study. Two sources (5.4%; Chamlin et al., 2005; Neri et al., 2012) used the CADIS, as was mentioned earlier. The CADIS divides the parent domain into three subdomains: emotions, family and social function, and sleep. These three subdomains served as concept attributes in the current study. One source (2.7%; Kondo-Endo et al., 2009) used the Quality of Life in Primary Caregivers of Children with Atopic Dermatitis (QPCAD) questionnaire, which was developed in that same study. The QPCAD questionnaire comprises four subscales: exhaustion, worry about atopic dermatitis, family cooperation, and achievement. We coded all four subscales as concept attributes. One source (2.7%; McKenna et al., 2005) used an original instrument called the Parents' Index of Quality of Life in Atopic Dermatitis (PIQoL-AD); as the PIQoL-AD is not divided into domains, each question was coded in the current study. The DFI, CADIS, QPCAD, and PIQoL-AD are all scales for measuring the QoL of parents and family members (primarily caregivers) of a child with atopic dermatitis.

One source (2.7%; Méni et al., 2013) used the Atopic dermatitis Burden Scale, which they also developed in that same study. The ABS is a scale specifically aimed at assessing the burden of families of children with atopic dermatitis. The ABS comprises four subscales: family life, budget and work, daily life, and treatment, all of which were coded as attributes. One source (2.7%; Son & Lim, 2014) used the Child Eczema Management Questionnaire developed by Mitchell and Fraser (2011), which is used to measure the self-efficacy of caregivers.

The other attributes identified from sources that did not use a scale or instrument (Miyagi & Ohkura, 2005; Miyagi, 2006; Moore et al., 2006; Ricci et al., 2006, 2009; Sarkar et al., 2004; Tsuzuki et al., 2006; Yamaguchi et al., 2011) were anxiety, depression, cost, sleep, and submissiveness difficulty in daily life.

All of the attributes of the parent domain were consolidated into five categories: “family function,” “physical fatigue,” “daily life,” “activity limitations,” and “emotion.” Importantly, two of these categories—“family function” and “emotions”—had both positive and negative impacts.

#### 4.4.7. Family function

Family function includes the subcategories of “adaptability” and “cohesion,” which were defined using a study of family systems by Olson and colleagues. They suggested that “adaptability” can be divided into four levels, in ascending order as follows: rigid, structured, flexible, and chaotic. “Cohesion” can also be divided into four levels, again in ascending order: disengaged, separated, connected, and enmeshed. These two subcategories can be used to categorize families in terms of their family functioning using the Circumplex Model of Marital and Family Systems (McCubbin, Cauble, & Patterson, 1982; Olson, 1983; Olson, Russell, & Sprenkle, 1989). According to the Circumplex Model, families require an appropriate level of closeness and flexible adaptability, and both have positive and negative effects, depending on the situation; similarly, the “cohesion” and “adaptability” subcategories can reflect positive and negative effects, depending on the situation.

#### 4.4.8. Physical fatigue

This category comprises the subcategories of “tiredness” and “sleep.” These subcategories mainly referred to the physical fatigue caused by the strain of providing around-the-clock care to the child with atopic dermatitis and having one's sleep disturbed because of an exacerbation of the child's condition, respectively. The difficulty involved in providing care is readily assumed to lead to physical tiredness. Chamlin et al. (2005) indicated that sleep disturbances can develop in either the affected child or a parent, and they noted that parents were often bothered by the act of co-sleeping.

#### 4.4.9. Daily life

This category comprises the subcategories of “daily life related to the childcare,” “maintenance the family life,” and “cost.” The “daily life related to the childcare” subcategory refers to the routine activities

associated with providing care. In contrast, “maintenance the family life” refers to those activities required to sustain a family life and are not limited to activities associated with the child's condition. This subcategory highlights how having a child with an illness makes family life more difficult. In the literature that we analyzed, the primary caregivers were generally mothers. The Organisation for Economic Cooperation and Development indicated that men engage in unpaid work—such as household chores, shopping, and caring for a family member—an average of 137.6 min per day, which is nearly half the amount of time that women engage in such work (at 271.7 min/day) (Organisation for Economic Cooperation and Development [OECD] Gender Equality database, n.d.). The OECD has cited India, Japan, and South Korea as countries where unpaid work was predominantly done by women. Although there are differences, women are largely responsible for household chores around the world. Thus, the impacts of raising a child with atopic dermatitis may compound the burden on women already brought by their roles in taking care of the home, parenting, and maintaining a healthy family life.

Finally, the “cost” subcategory refers not only to treatment but also to nonmedical treatment. Skin conditions are predicted to lead to additional expenditures (Balkrishnan et al., 2003c; Balkrishnan et al., 2003b).

#### 4.4.10. Activity limitation

This category comprises the subcategories of “family activity” and “working.” The former subcategory was also found in the child domain, whereas the latter appeared unique to the parent. The “working” subcategory referred to work–life balance, or how having a child with atopic dermatitis can detract from family members' work life because they need to care for the child or take the child to see a doctor.

#### 4.4.11. Emotions

As with the child domain, this category contained the subcategories of “emotions related to the reaction with others” and “emotions related to the child's symptoms.” However, it also contained a third subcategory, “shared emotions related to general parenting and disease management.” The first two subcategories referred to the anguish felt by the caregiver in relation to the child's symptoms and to others' reactions to those symptoms, with the latter relating to “felt stigma,” as mentioned earlier. Both of these subcategories coincide with Pitchforth et al.'s (2011) previously stated findings concerning the parents of children with nut allergies.

The “shared emotions related to general parenting and disease management” subcategory refers to the various negative emotions—for example, distress, anxiety and depression—that any parent would feel when raising a child. However, we posit that these emotions appear to be enhanced when parents are raising a child with atopic dermatitis, due to the need to provide extra care to these children.

“Achievement” and “self-efficacy” were identified as emotions that wavered from positive to negative depending on the situation. These emotions were considered important aspects of the family adjustment process.

### 4.5. Identifying the antecedents and consequences

#### 4.5.1. Antecedents

The antecedents were divided according to whether they related to the child or parent domain. However, several antecedents were found in both domains. The child domain comprised the antecedents of “age” and “gender” (both of which are demographic characteristics), as well as “severity” and “allergy-related complication,” which were directly related to the child's condition. The antecedents of the parent domain included “gender,” “education,” “caregiver's job,” and “health status,” which are all demographic characteristics. The domain also included “perception of the severity of the child,” which referred to how parents/caregivers perceived the severity of their child's condition. Finally, both



domains included the antecedents of “social class,” which related to financial concerns; “care history,” which related to the care the child or parent had received in the past (e.g., utilizing nursing interventions, joining support groups, use of services beyond medical treatment); and “family type,” which referred to whether the family was nuclear or extended.

#### 4.5.2. Consequences

Like the antecedents, the consequences could be divided into child and parent domains, although some consequences overlapped between the two domains. The parent domain included the consequences of “physical health,” “psychological health,” and “parenting stress.” In contrast, the child and parent domains both included “family function” (adaptability, in particular). Notably, the parenting stress of parents raising children with atopic dermatitis was comparable to that of individuals raising children with other chronic illnesses such as diabetes or deafness (Faught, Bierl, Barton, & Kemp, 2007). Tsuzuki et al. (2006) also found that mothers who were rearing a child with atopic dermatitis experienced parenting stress related to their child, while Cardenas and Suehara (2008) found that not only mothers but also fathers experienced parenting stress. These consequences, including parenting stress, can influence the QoL of the whole family.

#### 4.6. Identify related cases

The Family Impact of Atopic Dermatitis and the QoL of Atopic Dermatitis were identified as relevant examples. Most of the scales used in past literature of interest were disease-specific measures of QoL. These QoL scales are structured such that higher scores indicate poorer QoL, and lower scores better QoL. The Family Impact of Atopic Dermatitis is an appropriate means of assessing both the negative and positive impacts of atopic dermatitis on QoL, thus providing a more comprehensive assessment.

Both of the aforementioned scales determine the family impact of atopic dermatitis from the perspective of the affected child and caregiver; however, no scales, to our knowledge, assess the family as a single unit. We found that some of the categories fell into both the child and parent domains, suggesting that the family as a whole needs comprehensive support.

#### 4.7. Defining empirical referents

Overall, the family impact of childhood atopic dermatitis encompasses the effects of the disease on the QoL of a family raising children with atopic dermatitis. The attributes of this concept fall into both parent and child domains. The child domain comprises four categories of attributes: symptoms, daily life, activity limitations, and emotion. In contrast, the parent domain comprises five categories: family function, physical fatigue, daily life, activity limitations, and emotion.

## 5. Discussion

### 5.1. Conceptual model and definition of the concept

A model of the concept is depicted in Fig. 1. As noted above, the family impact of childhood atopic dermatitis can be broadly divided into child and parent domains. The child domain includes various symptoms and unavoidable situations (e.g., activity limitations) caused by the child's disease. Furthermore, the atopic dermatitis itself and the care that the child has to receive for their condition influences their daily life. The affected child also experiences numerous emotions as a result of their condition, both due to their symptoms and the perceptions of others.

The parent domain similarly includes the various impacts of the symptoms of the child's atopic dermatitis and care required for

management of the condition on daily life and the unavoidable situations (i.e., activity limitations) encountered by the entire family as a result of the disease. Having a child with atopic dermatitis also leads to physical fatigue because of the troublesome nature of providing care for that condition. The disease also influences family function—in other words, role-sharing within the family and the relations among family members. Nevertheless, family function is not necessarily affected in a purely negative manner: If a family adapts to the situation and family members develop a system of cooperation with each other, then family function can help family members overcome the child's situation by staying positive. Caregivers experience complicated emotions because they are caring for a child with a chronic condition. Indeed, the parent domain is similar to the child domain in that a parent's emotions relate to both the child's condition and how the child is viewed by others. However, parents do not necessarily find providing care for their children with atopic dermatitis negative because they also experience positive emotions such as a sense of achievement and self-efficacy.

### 5.2. Major characteristics of this study and suggestions for nursing in the future

Overall, our results suggest that the impacts of atopic dermatitis on the family of children with atopic dermatitis are not necessarily negative—indeed, they can also be positive, at least in terms of family function and emotions, and such positive impacts can help strengthen families.

When assessing the family of children with atopic dermatitis, it seems necessary to focus on areas where the family needs assistance and what strengths that family has that can be promoted. In line with this, it would be important to provide support to the whole family and that is sensitive to the relationships of family members.

### 5.3. Limitations

This study has several limitations. As a result, all of the analyzed literature were quantitative studies or described the development of scales or instruments for quantifying the impact of atopic dermatitis on QoL of family members and children. This is because the difficulties of care of children with atopic dermatitis and the impacts on QoL among patients and their family have already been cleared. Thus, there is no qualitative literature about the process of their serious situations. The current study conducted a concept analysis of literature from various countries; in other words, only highly generalizable and useful concept attributes were identified. However, the forms of care and the family relations may change depending on the cultural context and how family roles are perceived. Specialists in atopic dermatitis care in different countries would likely need to search for concept attributes particular to their country and explore different forms of support.

### 5.4. Conclusions

We comprehensively determined how families raising a child with atopic dermatitis are influenced by the child's condition. The results indicated that the child domain of the family impact of childhood atopic dermatitis includes symptoms, daily life, activity limitations, and emotions, while the parent domain includes family function, physical fatigue, daily life, activity limitations, and emotions. All of these attributes were found to influence the QoL of families raising a child with atopic dermatitis. However, this study was only able to identify the general concept attributes; the forms of care and roles within the family may differ according to cultural context. Thus, the current findings cannot yet offer clear benefits to practice. Instead, the forms of support for different situations would need to be explored.

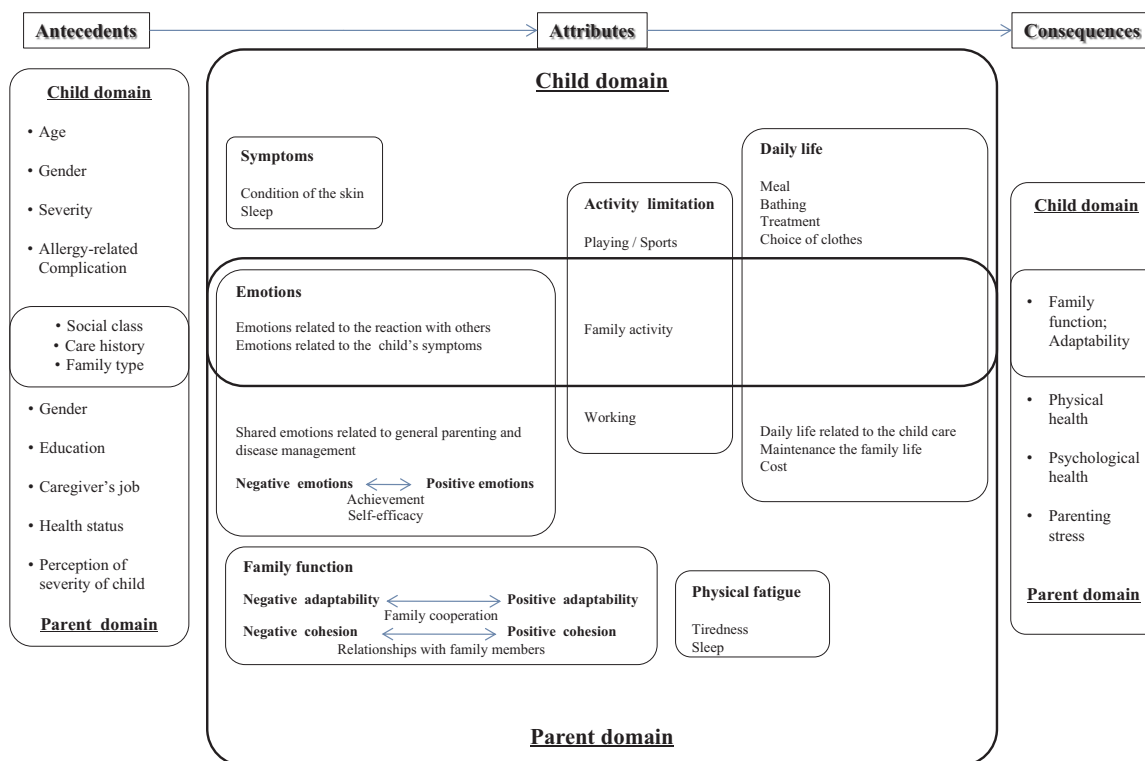


Fig. 1. The Family Impact of Childhood Atopic Dermatitis; a concept analysis.

## Conflict of interest

None.

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## Ethical approval

None.

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