

Psychological and social factors of atopic dermatitis

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Historical perspective

For a long time, clinicians have suspected that psychological and social factors play a role in the development or course of some skin diseases. Of the various skin diseases, atopic dermatitis (AD) has received particular attention as a "psychosomatic" disorder (27). The early psychosomatic literature attempted to describe a specific personality profile or identify a specific unconscious conflict that characterized the AD patient. AD patients have been described as individuals who are insecure, dependent, sensitive, have a tendency to repress emotions, and have difficulty expressing anger (10, 27). Scratching symptoms in AD have been interpreted as symbolic of self-punishment or an unconscious expression of sexual conflict or aggression (10).

The psychosomatic approach to defining a specific AD personality profile has been extensively criticized (22). Studies have been methodologically inadequate, failing to use standard psychological instruments, lacking adequate controls, and failing to establish causal relationships. There has been little consensus in the literature of a particular AD personality type. Furthermore, recent controlled studies using standard psychological instruments have found no significant differences between children with AD and children with other skin disorders or normals (20, 21). Over time, there has been a shift away from these attempts to identify an AD "personality type".

More recently, a biobehavioral approach has directed psychological studies (10). According to this approach, the course of AD in a genet-

ically predisposed individual is influenced by a complex interaction of biological, psychological, and social factors. Although the mechanisms are not clearly understood, it is theorized that eczematous flares may be the result of psychological variables such as stress stimulating certain pathophysiological reactions such as: increased sympathetic arousal, peripheral vascular changes, liberation of histamine in the skin, and a lowered itch threshold (10). As a result, an itch-scratch cycle is initiated that perpetuates skin lesions (11). This article reviews several recent studies that have taken a biobehavioral perspective to the study of AD in children.

Stress and AD symptomatology

In the psychological literature, studies have found relationships between stress and susceptibility to various health problems (23). Some of the earlier studies were based on the assumption that major life events which occurred in the recent past were related to the onset or exacerbation of symptoms. The events included acute and dramatic events such as marriage, divorce, death of a family member, moving to a new house, and major change in job status. Research has shown that major life events are related to symptoms in children with chronic illnesses (3).

In contrast to the major life events approach, the impact of relatively minor stresses that characterize everyday life has become a focus of research interest. The assumption underlying this line of inquiry is that ongoing, annoying, and chronic practical problems such as misplacing or losing things, being overloaded with

responsibilities, and not getting along with a family member, are also a source of significant stress for the affected individual. Research has shown that these more minor chronic stresses may be even more predictive of disease symptomatology than major life events (9).

In the AD area, there have been several studies that associate stress from major life events with the onset or exacerbation of AD symptoms (4, 25). These studies found that stress, such as separation from parents by divorce, death of a family member, and other physical illness, occurred in the recent past just prior to eczematous flares. These early studies are limited, however, in that they measured major life events on the basis of subjective interviews or required distant retrospective recall by asking adult patients to recall stresses from childhood. There have been very few systematic studies directly assessing stress in children.

Recently, we (12) systematically examined both major life events and chronic everyday problems in a sample of 44 AD children (26 girls, 18 boys) with a mean age of 6.9 years (range = 2 to 21) who were diagnosed as having AD using standard criteria (14). The Life Events Record (8) was used to assess major life events. Two checklists of everyday problems were used. The first was composed of repeated ongoing "generic" stresses commonly experienced by children with and without health problems. Example items were: "getting bad grades in school", and "arguing with parents about chores". The second was an 18-item checklist that consisted of problems specifically related to AD treatments and lifestyle adjustments to AD such as "putting on creams", "taking medicine", and "dressing differently".

These measures of stress were related to several measures of symptom severity. To quantify the cutaneous involvement, the examining specialist nurse mapped skin areas showing eczematous signs on a body chart and a percentage of skin area affected was determined. A standard symptom score sheet was completed by the nurse to quantify symptoms having occurred in the previous 3 to 6 months in areas including: course of symptoms (i.e. continuous vs remission periods), intensity of day and night

scratching, antibiotic and antihistamine use. Several medical variables also were controlled statistically: serum IgE concentration determined by radioimmunoassay, and age of onset of AD symptoms.

Although other authors have found that major life stress and everyday problems affect AD symptoms, no significant correlations between life events scores and everyday problem measures with symptoms severity were found in this study. However, the AD problem checklist was significantly related to AD. The more distress associated with AD, the higher the percentage of body area affected by AD, the more continuous the course, the greater the intensity of day and night scratching, and the more antihistamine and antibiotics taken.

In conclusion, stress does appear to be an important predictor of AD symptoms in children. Distress associated with AD may lead to more severe symptoms, possibly because of more scratching. Another logical possibility is that children with more severe disease have more distress. Future research needs to further examine the nature of the relationship between distress and symptoms severity.

Family environment and parent personality

Childhood chronic illness has a significant impact on the family. The family often experiences emotional distress surrounding a child's illness. The family's lifestyle is usually disrupted by frequent health care visits and ongoing treatment at home. Research has shown that childhood illness can be a major source of stress which can influence adjustment in all family members (26).

On the other hand, the parents and family can have a significant impact of the child's illness. The family plays an important role in the medical management of the child's health problems. Family members are involved in, or assume primary responsibility for implementing the medical care of the child. Research has found that dysfunctional families often have problems adhering to treatment prescriptions and thereby, may contribute to poor symptom management in the child (16).

Parents are responsible for much of the medical care of the child with AD including the application of topical lubricating creams, and giving frequent soaking baths. Family routine must at times be altered to accommodate AD treatments. Some families appear to adjust well, whereas other families appear to experience distress associated with having an AD child.

For these reasons, several authors have extended their focus beyond the AD patient to study the parents and the family unit. Among the earliest concepts discussed in the AD literature were maternal overprotection and maternal rejection (18). Authors have claimed, for instance, that the AD child is rejected because parents dislike touching the child (22). Other family variables that have been described as related to AD included conflict in the family and inadequate disciplinary practices of the parents. These early speculations were limited, however, in that they were based on subjective clinical impressions without adequately controlled investigation of the parents of AD children.

Recently, several controlled studies (20, 21) have assessed the relationship of personality variables in the parents to AD symptoms in the child. Several psychodiagnostic instruments were administered to both the mother and father. Mothers were found to be less emotional, less spontaneous, more under control, and more strict in educational practices in comparison to controls. Fathers tended to be more irritable as compared to controls. Conflict among family members and difficulties in emotional relationships also were found in AD families.

Salomon & Gagnon (24) recently conducted a well-controlled investigation of very young AD children (6 to 10 months old) and their mothers. Observers went into the home on five occasions and recorded mother-child interactions. The results indicated that there were significant, yet subtle, differences between AD parent-child dyads and matched controls. Mothers were less aware and less involved with their children except when children were overly seeking attention or engaging in negative behaviors.

Gil et al. (12) examined the relation of family environment to several indices of AD symptom severity in the sample of 44 children previously described. The Family Environment Scale (19) was applied to provide information in several areas including cohesion, expressiveness, conflict, independence, organization, control, and moral-religious emphasis.

The results indicated that certain dimensions of family environment were related to AD symptomatology. Children from families scoring high on independence and organization had significantly lower percentage of body area by AD, a less continuous a course (i.e., more remissions), and less night scratching. Thus, families emphasizing regular routines, self-reliance, independent thinking, and clearly designated family responsibilities were associated with reduced symptoms in their children. Also, children from families scoring high on moral-religious emphasis were reported to use significantly more medications.

Statistical techniques were employed to control for IgE concentration and age of onset of AD, as well as the subjects' sex and current age. The results showed that the family environment dimensions were important predictors of symptom severity even after taking certain medical variables into consideration.

In conclusion, the parents and family environment appear to be related to AD symptom severity. There are two possible explanations for this relationship. First, children with severe AD may disrupt even organized families and lead to less consistent parental approaches. Another possible explanation is that certain family styles may be more consistent, promote better compliance with treatment regimens, and encourage more responsible, independent care on the part of the child. These families may be less stressful and thus result in less symptoms.

Parental response to scratching

The behavioral consequences provided by the parent are significant factors in a young child's environment. Extensive research has been conducted in the behavioral assessment of parent-

child interactions and has found that certain problem behaviors in children such as non-compliance and aggression are often inadvertently maintained through parental responses such as attention to inappropriate child behavior (5). Even seemingly positive responses by the parent such as reassurance have been associated with higher levels of distress and maladaptive responses by the child (6).

In AD, parents are often confused about what to do in response to their child's scratching. There have been case descriptions of parents using disciplinary practices such as sending the child to his/her room, spanking the child, scolding him/her or otherwise punishing the child for scratching (1). Parents criticize the child or engage in lengthy rational explanations as to why the child should not scratch. Despite these attempts to reduce scratching, children continue to scratch. Case study findings have suggested that attention given in response to scratching, even seemingly negative attention, may actually maintain or increase scratching; ignoring or withdrawal of attention may reduce scratching (1, 2, 7). Few systematic studies have been conducted in this area, however.

Recently, we (13) systematically examined parents' responses to scratching in their children in a controlled laboratory situation. Thirty children (15 girls and 15 boys) with a mean age of 5.6 years (range 3 to 13 years) who were diagnosed as having AD using standard criteria (14) served as subjects. This sample had a mean percentage of body area affected by AD of 16.5% (SD = 16.3%). Most of the children had a history of AD dating back to infancy. Subjects also had severe chronic AD that was not responsive to usual medical care.

Parent-child interactions were videotaped as commonly done to examine parent-child behavior patterns. Videotapes were then scored by trained observers who recorded the occurrence of three child behaviors: 1) scratching (child used fingernails on skin), 2) rubbing (child moved hand(s) or any soft object across skin), and 3) child request/itch statements (child asks parent to scratch or rub skin or child makes statement such as "It itches"). The occurrence of four parent behaviors were also recorded: 1)

scratching (parent scratches child's skin), 2) rubbing (parent rubs child's skin), 3) "stops" (parent attempts to stop the child from scratching or rubbing), and, 4) attention (parent attends to the child's behavior).

The results indicated a very strong relationship between child and parent behavior. Parents almost always paid attention to scratching-related behaviors in child. The more attention from the parent immediately following any of the child's scratching-related behavior, the more the child scratched and rubbed. As the child's scratching increased, the parent significantly increased attempts to stop the child from scratching. On the other hand, as the parent increased attention to task involvement, rather than scratching, the child significantly decreased scratching and rubbing. Thus, social responses from parents when the child is scratching, such as attention or actual physical contact in the form of parent scratching and rubbing, may reinforce or promote an increase in the level of child scratching. Social responses from the parent when the child is *not* scratching may reduce the level of child scratching by reinforcing the child's involvement in other more appropriate activities.

Interestingly, although the child's percentage of body area affected by AD was not associated with any aspects of the child's behavior, it was related to the behavior of the parents. The more skin area affected by AD, the higher the level of parent scratching, and the more attempts by the parents to get the child to stop scratching. It is possible that parents of children with more observable skin area affected by AD attempt to alleviate the child's discomfort and inadvertently initiate scratching and rubbing the child's skin.

Situational factors and scratching

Informal observation of children with AD reveals that children scratch more in some situations than in others. For instance, many children scratch more during passive activities such as watching TV and scratch less during active activities such as doing homework, or playing

sports or games. Parents often observe that children scratch more at bedtime. Very little systematic research has been done investigating the effects of situational variables on scratching in AD.

Recently, we (13) analyzed the effects of level of structure on scratching in the sample of 30 AD children (15 boys, 15 girls) described above. Children were videotaped for 10 min while they were interacting with one parent. The observation session was divided into two conditions. For 5 min, the task was structured with the parent and child working together on building a model. Five minutes of unstructured time was also observed in which the parent and child were not given any specific project and toys were removed. Videotapes were then scored by trained observers who recorded the occurrence of child scratching, rubbing, and requests/itch statements, and parent scratching, rubbing, "stops", and attending.

Significant differences were found between structured and unstructured tasks in both the child and parent behavior. During unstructured tasks, children engaged in significantly more rubbing and requests/itch statements as compared to the structured task. During the structured task, children scratched less. Parents generally exhibited more of all of parent behaviors during the unstructured as compared to structured task. An important exception was that parents attended to task involvement significantly more than scratching during the structured task. Thus, children may be distracted during certain tasks, and therefore scratch less. Parents also appear to be more involved in the task and direct less attention directly to child scratching. This difference in the parent behavior may be responsible for the differences in child scratching.

Implications

In summary, psychological and social factors are significantly related to symptom severity in AD. Excessive distress in the child, disorganization in the family, and certain responses of the parent to scratching may serve to promote

increased symptoms in some children. Given that these children may be "at risk", physicians should screen the AD children by looking for signs in the child, in the parent, and in the family unit. There are several simple methods that physicians could use to screen AD children. First, a checklist of AD problems could be used to identify children with excessive distress. Standard questionnaires of family functioning are available to screen for conflict and disorganization in families. These instruments could easily be completed by parents in the waiting room in about 15 min. Second, direct observation of the parent-child interactions while the child is in the hospital or doctor's office could help identify parents who inappropriately respond to scratching with excessive attention, or actual scratching of the child's skin.

The research presented here has several implications for ways to manage children identified as "at risk". First, it is important to minimize conflict and distress for the child and all family members created by treatment regimens. This might be accomplished by scheduling the administration of treatments such as the application of creams at regular times each day as a planned routine and sharing responsibilities among family members. Second, families should foster organization, independence, and responsibility in the child for the medical care of AD. Involving the child in decisions about when to schedule treatments and encouraging the child to assume aspects of his or her own care may promote a sense of control and responsibility. Third, it is important to minimize distress outside the home, at the school and with peers. Educational input at the school may be essential for some children. Finally, minimizing scratching is important. Parents who have problems dealing with scratching can first be advised to investigate the problem by keeping a diary of scratching frequency, noting the child's activity, mood, and parent's response. Then, parents could be advised to: decrease attention to scratching by increasing attention and praise for other activities; minimize attempts to stop scratching by physical restraint; and structure other activities at vulnerable times. In cases of children who have severe

symptoms despite repeated interventions and advice by physicians, referral for psychological treatment such as biofeedback and behavioral approaches (15), family therapy, or support groups (17) may be indicated.

REFERENCES

- Allen, K. E. & Harris, F. R.: Elimination of a child's excessive scratching by training the mother in reinforcement procedures. *Behav. Res. Therapy* 4, 79-84, 1966.
- Bar, L. H. J. & Kuypers, B. R. M.: Behaviour therapy in dermatological practice. *Br. J. Dermatol.* 88, 591-598, 1973.
- Bedell, J. R., Giordani, B., Amour, J. L., Tavormina, J. & Boll, T.: Life stress and the psychological and medical adjustment of chronically ill children. *J. Psychosomatic Res.* 21, 237-242, 1977.
- Brown, D. G.: Stress as a precipitant factor of eczema. *J. Psychosomatic Res.* 16, 321-327, 1972.
- Budd, K. S., Green, D. R. & Baer, D. M.: An analysis of multiple misplaced parental social contingencies. *J. App. Behav. Anal.* 9, 459-470, 1976.
- Bush, J. P., Melamed, B. G., Sheras, P. L. & Greenbaum, P. E.: Mother-child patterns of coping with anticipatory medical stress. *Health Psych.* 5, 137-157, 1986.
- Cataldo, M. F., Varni, J. W., Russo, D. C. & Estes, S. A.: Behavior therapy techniques in treatment of exfoliative dermatitis. *Arch. Dermatol.* 116, 919-922, 1980.
- Coddington, R. D.: The significance of life events as etiologic factors in the diseases of children. II. A study of a normal population. *J. Psychosomatic Res.* 16, 205-213, 1972.
- DeLongis, A., Coyne, J. C., Dakof, G., Folkman, S. & Lazarus, R. S.: Relationship of daily hassles, uplifts, and major life events to health status. *Health Psych.* 1, 119-136, 1982.
- Faulstich, M. E. & Williamson, D. A.: An overview of atopic dermatitis: Toward a biobehavioural integration. *J. Psychosomatic Res.* 29, 647-654, 1985.
- Faulstich, M. E., Williamson, D. A., Duchmann, E. G., Conerly, S. C., Brantley, P. J.: Psychophysiological analysis of atopic dermatitis. *J. Psychosomatic Res.* 29, 415-417, 1985.
- Gil, K. M., Keefe, F. J., Sampson, H. A., McCaskill, C. C., Rodin, J. & Crisson, J. E.: The relationship of stress and family environment to atopic dermatitis symptoms in children. *J. Psychosomatic Res.* 31, 673-684, 1987.
- Gil, K. M., Keefe, F. J., Sampson, H. A., McCaskill, C. C., Rodin, J. & Crisson, J. E.: Direct observation of scratching behavior in children with atopic dermatitis. *Behavior Therapy* 19, 213-227, 1988.
- Hanifin, T. M. & Rajka, G.: Diagnostic features of atopic dermatitis. *Acta. Derm. Venerol. (Suppl.)* 92, 44-47, 1980.
- Haynes, S. N., Wilson, C. C., Jaffe, P. G. & Britton, B. T.: Biofeedback treatment of atopic dermatitis: Controlled case studies of eight cases. *Biofeedback Self-Reg.* 4, 195-209, 1979.
- La Greca, A. M.: Adherence to prescribed medical regimens. In D. K. Routh (ed.) *Handbook of Predictive Psychology* (Guilford Press, New York, 1988).
- McSkimming, J., Gleeson, L. & Sinclair, M.: A pilot study of a support group for parents of children with eczema. *Australian J. Dermatol.* 25, 8-11, 1984.
- Miller, H. D. & Baruch, D. W.: Psychosomatic studies of children with allergic manifestation: I. Maternal rejection - a study of 63 cases. *Psychosomatic Med.* 10, 274-278, 1948.
- Moos, R. H.: *The Family Environment Scale* (Consulting Psychologist Press, Inc., Palo Alto, CA, 1974).
- Ring, J. & Palos, E.: Psychosomatische Aspekte der eltern-kind-beziehung bei atopischem Ekzem im Kindersalter. II. Erziehungsstil, Familiensituation im Zeichentest und strukturierte Interviews. *Der Hautarzt* 37, 609-617, 1986.
- Ring, J., Palos, E. & Zimmermann, F.: Psychosomatische Aspekte der eltern-kind-beziehung bei atopischem Ekzem im Kindersalter. I. Psychodiagnostische Testverfahren bei eltern und Kindern und vergleich mit somatischen Befunden. *Der Hautarzt* 37, 560-567, 1986.
- Rostenberg, A.: Psychosomatic concepts in atopic dermatitis: A critique. *A. M. A. Arch. Dermatol.* 79, 692-699, 1959.
- Sarason, I. G., Johnson, J. H. & Siegel, J. M.: Assessing the impact of life changes: Development of the life experiences survey. *J. Consulting Clin. Psychol.* 46, 932-946, 1978.
- Solomon, C. R. & Gagnon, C.: Mother and child characteristics and involvement in dyads in which very young children have eczema. *Develop. Behav. Ped.* 8, 213-220, 1987.
- Ullman, K. C., Moore, R. W. & Reidy, M.: Atopic eczema: A clinical psychiatric study. *J. Asthma Res.* 14, 91-99, 1977.
- Varni, J. W. & Wallander, J. L.: Pediatric chronic disabilities. In D. K. Routh (ed.) *Handbook of Pediatric Psychology* (Guilford Press, New York, 1988).
- Whitlock, F. A.: *Psychophysiological aspects of skin disease* (W. B. Saunders, London 1976).

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