

**Appendix S1.****MATERIALS AND METHODS***Recruitment and data collection*

Single mothers with children with atopic eczema (AE) were recruited via questionnaires handed out at the offices of practicing physicians in a special clinic (LVA-Fachklinik on Sylt, German island) and in kindergartens. Within 1 month, mothers in families with children with AE were matched and, finally, recruitment was performed by looking for healthy mothers in a single or family situation with children of the same age and gender. From a total of 145 mothers invited to participate, 37 declined for different reasons, mainly time problems, thus the participation rate was 74.5%. Data were collected from a total of 108 mothers. Only 96 of the 108 data-sets were included in the final analyses, due to missing data and parallelization of the samples. Data were collected from July 2002 to January 2003. Severity of AE was measured by questions about the area, intensity of erythema and intensity of itch reported by the mothers of the children with AE. Inclusion criteria were: acceptance to participate in the study, females aged 18–65 years, and having a child with AE diagnosed by a dermatologist or paediatrician. Exclusion criteria were: Missing ability to understand German, unclear diagnosis, or asthma as a more prominent diagnosis. Mothers with psychiatric diseases were also excluded.

After collecting the data from single mothers and mothers in a partnership with children with AE, corresponding mothers of healthy children were selected by matching the single mothers with children with AE to mothers in families with children with AE with regard to age and gender.

*Measuring instruments and statistics*

Short Stress Questionnaire (Kurzer Fragebogen zur Erfassung von Belastung (KFB)) (16) measures non-health-related stress. The 19 items can be answered on a rating scale that ranges from "strongly disagree" (=0) to "applies exactly" (=5). The items can be combined into 4 subscales to examine stress in everyday life, at work, in the family/partnership and in social relationships. High values represent high stress. The internal consistency is between 0.57 and 0.87. Re-test-reliability varies between 0.68 and 0.78. The questionnaire was used in different studies for somatoform pain disorders (16).

The Satisfaction with Life Questionnaire (Fragebogen zur Lebenszufriedenheit (FLZ)) (17) examines satisfaction with life in 10 relevant areas (health, work and profession, financial situation, leisure time, marriage and partnership, relation to one's children, self, sexuality, friends, acquaintances, relatives and living quarters). A sum score of general life satisfaction is determined, in which the scales "work and profession", "marriage and partnership" and "relationship to one's children" are not included. The FLZ consists of these 10 scales with 7 items each. The items can be answered on a scale ranging from "very dissatisfied" (=0) to "very satisfied" (=7). The content and logical validity are good and the reliability is between 0.82 and 0.94 (17).

General Depression Scale (Allgemeine Depressions-Skala (ADS)) (18) offers a good diagnostic tool to measure currently-existing depressive symptoms. The scale is the adaptation of the well-known Beck's Depression Inventory (BDI). Depressive symptoms are among the most widespread emotional disorders and present a very heterogeneous pattern, which includes emotional, thematic, cognitive, somatic and also motoric symptoms. The 20 items can be answered on a scale that ranges from "rarely" (=0) to "usually" (=3). The items are then added to a sum score. A sum score below 17 is considered unremarkable, scores above 23

represent borderline, and a depressive disorder is apparent when a sum score above 27 is reached. The ADS is considered to be sensitive, but not very specific with respect to the diagnosis of a depressive disorder. The reliability is very high.

The Questionnaire for Parents of Children with Atopic Eczema (Fragebogen für Eltern von Neurodermitis kranken Kindern (FEN)) (19) was developed to determine the specific problems of parents whose children have AE. The 22 items are answered on a scale ranging from "does not apply at all" (=1) to "applies exactly" (=5). The items can be used to determine 4 subscales. The first scale measures the emotional reactions to the child's scratching behaviour, which are elicited in the parents, such as helplessness and aggression. The second scale measures increased parental attention due to the presumed greater need for protection, caused by the child's AE. Scale 3 assesses the extent of attempted control that the parents show to control the child's scratching. The fourth scale measures the parents' expectations regarding successful treatment of their children. The internal consistency was 0.59 for the scale "control the child's scratching", 0.63 for the scale "control the child's scratching", 0.89 for the scale "protection behaviour" and 0.90 for the scale "helplessness and aggression against scratching". The construct validity is good and the questionnaire is included in several studies (S2, 37).

Questionnaire on Social Support (Fragebogen zur Sozialen Unterstützung; F-SOZU), developed by Fydrich & Sommer (20, 21), assesses individually-experienced social support/stress. This is interpreted as the result of interaction between the individual and the social environment. The F-SOZU is intended to provide important information about the influence of social support on the onset and maintenance of emotional and physical diseases and to identify protective factors that have supportive, helpful and promoting effects on mental and physical health. The questionnaire consists of 2 parts; Part A covers the subjectively-perceived social support or stress; Part B measures the quality of the support or stress by the concrete naming of persons who are experienced as socially supportive or stressing. Questionnaire Part A consists of 54 items, which can be combined into 4 scales (emotional support, instrumental support, social integration, and social strain). The items can be answered on a 5-level rating scale from "does not apply at all" (=1) to "applies exactly" (=5). The first 3 scales can be combined to a total score called "Perceived social support". Questionnaire Part B consists of 10 items and covers the quantitative aspects of social support/stress. Up to 5 persons can be named per item, who are considered to be socially supportive (6 items) or stressing (4 items). These persons are subdivided into spouse/partner, family members and acquaintances and are combined in the evaluation of 2 main scores (number of persons considered supportive and number considered as stressing). The internal validity excellent, and varies between 0.81 and 0.93, the retest reliability was 0.65 within 2 months (21).

Data analysis was performed using the SPSS program package 9.0 in 2005. The applied statistical procedures included frequency counts, *t*-tests for independent samples and analyses of variance. Using an univariate analysis of covariance the covariables age, education, severity and others were taken into account.

**SUPPLEMENTARY REFERENCES**

- S1. Brähler E, Holling H, Leutner D, Petermann F. Brickenkamp Handbuch psychologischer Tests und pädagogischer Tests 2002; Hogrefe: Göttingen.
- S2. Kupfer J, Keins P, Brosig B, Darsow U, Diepgen T, Fartasch M, Korsch E, et al. Development of questionnaires on coping with disease and itching cognitions for children and adolescents with atopic eczema. *Dermatol Psychosom* 2003; 4: 79–85.