

Family Impact of Atopic Dermatitis in Children Under Six Years of Age: A French Evaluation

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The majority of cases of atopic dermatitis (AD) in children under 6 years of age are mild (mild AD: 67%, moderate AD 26%, severe AD 7%) (1). AD in young children (age 6–12 years) and adolescents (age 13–17 years) has been the subject of several recent evaluations (2, 3). However, the impact of AD on parents of very young atopic children under 6 years of age has not been

evaluated recently. The aim of this study was to evaluate this impact.

METHODS AND RESULTS

A total of 545 parents of children with physician-confirmed AD aged 0.5–6 years were recruited from a representative sample of

Table I. Description of the overall population and by severity according to the Patient-Oriented Eczema Measure (POEM)

	Overall population	Mild AD POEM score ≤6	Moderate AD POEM score 6–16	Severe AD POEM score ≥17
Sex of parent respondent, n (%)				
Father	143 (26.24)	88 (25.36)	44 (26.67)	11 (33.33)
Mother	402 (73.76)	259 (74.64)	121 (73.33)	22 (66.67)
Sex of junior, n (%)				
Boy	313 (57.43)	190 (54.76)	100 (60.61)	23 (69.70)
Girl	232 (42.57)	157 (45.24)	65 (39.39)	10 (30.30)
Age of child, n (%)				
2 years and under	220 (40.37)	138 (39.77)	72 (43.64)	10 (30.30)
Under 6 years	325 (59.63)	209 (60.23)	93 (56.36)	23 (69.70)
POEM severity assessment of atopic dermatitis, n (%)				
Mild	347 (63.67)	347 (100.00)		
Moderate	165 (30.28)		165 (100.00)	
Severe	33 (6.06)			33 (100.00)
Health professional consulted in the last 3 months, n (%)				
General practitioner	265 (48.62)	172 (49.57)	76 (46.06)	17 (51.52)
Dermatologist	214 (39.27)	109 (31.41)	84 (50.91)	21 (63.64)
Paediatrician	216 (39.63)	129 (37.18)	73 (44.24)	14 (42.42)
Allergist	62 (11.38)	23 (6.63)	35 (21.21)	4 (12.12)
Other specialist	1 (0.18)	1 (0.29)	0 (0.00)	0 (0.00)
No	35 (6.42)	26 (7.49)	9 (5.45)	0 (0.00)
Utility EQ-5D, mean ± SD	0.85 ± 0.21	0.89 ± 0.16	0.79 ± 0.25	0.71 ± 0.29
Min–Max	–0.17–1.00	–0.17–1.00	–0.12–1.00	–0.17–1.00
Median	0.91	0.91	0.91	0.80
Score ABS-F, mean ± SD	50.31 ± 17.33	44.61 ± 14.45	58.83 ± 17.46	67.75 ± 15.59
Min–Max	0.00–100.00	0.00–100.00	0.00–100.00	0.00–100.00
Median	45.24	40.48	59.52	66.67
Score DFI, mean ± SD	6.97 ± 7.41	4.32 ± 5.65	10.90 ± 7.87	15.21 ± 6.77
Min–Max	0.00–30.00	0.00–30.00	0.00–30.00	0.00–30.00
Median	4.00	2.00	11.00	16.00
Burden and daily impact, %				
Feeling guilty about their child's AD, %	26.61	17.29	39.39	60.61
Their child's AD disrupts their daily life, %	19.45	10.37	32.73	48.48
Their child's AD impacts their organization, %	20.73	13.26	28.48	60.61
Declare to give up certain leisure activities because of their child's AD, %	20.55	12.10	34.55	39.39
Choose their vacation spot based on their child's AD, %	17.61	12.10	24.24	42.42
Their child's AD forces them to forbid certain sports, %	15.05	7.78	27.88	27.27
Their child's AD disrupts their family life, %	13.39	7.49	21.82	33.33
Their child's AD affects their sleep, %	19.82	9.80	36.36	42.42
Their child's AD forces them to neglect their other children, %	6.97	3.46	12.12	18.18
Their child's AD causes tension in their relationship, %	7.89	4.32	14.55	12.12
Their family life is organized around their child's AD, %	11.56	6.05	18.79	33.33
Part of their budget is devoted to their child's care, %	26.79	18.44	41.21	42.42
Have the impression that our child's AD is costing them more and more, %	23.49	15.85	36.97	36.36
Choose their child's clothes based on AD, %	27.71	18.73	42.42	48.48
The foods they eat are chosen based on AD, %	18.90	11.82	28.48	45.45
Spend a lot of time caring for their child, %	30.64	22.19	41.82	63.64
Hesitates to buy certain non-reimbursed medications, %	22.94	16.14	30.91	54.55
Have major concentration problems, %	10.83	6.05	20.00	15.15
Are getting tired of their child's daily care, %	13.21	8.65	18.18	36.36
They are very tired from the daily care of their child, %	12.48	6.63	20.61	33.33
Are late in the morning because of their child's care, %	9.54	4.32	17.58	24.24
At work, think about their child's AD all the time, %	10.09	3.46	19.39	33.33
Often talk about their child's AD to my colleagues at work, %	16.15	8.36	27.27	42.42
Regularly takes time off work to take their child to the doctor, %	10.83	4.32	21.21	27.27
Have had time off work because of their child's AD, %	12.66	6.63	23.03	24.24

AD: atopic dermatitis; EQ-5D: EuroQol 5 Dimensions 5 levels; ABS-F: Atopy Burden Scale – Family; DFI: Dermatitis Family Impact; SD: standard deviation.

the French population (identification of parents with a child with eczema among a representative sample constructed according to the quota method). Clinical severity was self-assessed by the child's parent using the Patient-Oriented Eczema Measure (POEM). The impact on families was assessed by 3 validated questionnaires: the EuroQol 5 Dimensions 5 levels (EQ5-D, not specific to dermatoses) (4), the Dermatitis Family Impact (DFI: specific to dermatoses, but not to AD) and the Atopy Burden Scale – Family (ABS-F, specific to AD).

To complete this evaluation, the out-of-pocket expenses (OOP-E) for the parents for care of their children were evaluated. Severity of AD, assessed by POEM, identified mild AD in 347 (64%), moderate AD in 165 (30%) and severe AD in 33 (6%) patients. Regardless of the tool used, whether or not it was specific to dermatosis, and whether or not it was specific to AD, a positive gradient was observed according to the severity of AD. The mean utility function score (TTO) based on the EQ-5D-3 L, mean parental DFI scores, and mean ABS-F scores are described in **Table I**. The impact felt by the parents on activities of daily living is also reported in Table I. The more severe the eczema, the greater the impact.

The mean annual OOP-E for the study population was $238 \pm 388\text{€}$. An evaluation of the mean OOP-E was carried out by considering the population of parents according to the different quartiles of the ABS-F score (the first quartile describes the population with the least severe burden, and the last describes the population with the most severe burden). These results clearly show that the OOP-E increases with the severity of the parent's burden assessed through the ABS-A score: the more intense the burden, the higher the patient's OOP-E: $141 \pm 172\text{€}$ for the 1st quartile, then, respectively, $186 \pm 163\text{€}$; $296 \pm 340\text{€}$; $331 \pm 675\text{€}$ for the 2nd, 3rd and 4th quartiles (**Table II**). A linear regression was conducted to determine to what extent the burden score can influence the family's OOP-E: 10 ABS-F points increase the OOP-E by 50€. When the age and sex of the child, the income of the parents and the burden were included in a linear model,

it emerged that only the burden was statistically related to the OOP-E.

DISCUSSION

This study on the impact of AD in parents of children under 6 years of age is, in terms of prevalence regarding severity levels, in line with published studies. The current study confirms that the impact on the family is all the more important, as the AD is severe regardless of the tool used. With a significant difference between the groups whether the tool used was specific to the field of dermatology (DFI for example) or specific to atopic dermatitis (ABS-F for example). Moreover, this is the first study to show a link between burden and OOP-E, highlighting that 10 points of burden generate 50€ of OOP-E. This high OOP-E could be explained by the fact that the French healthcare system does not pay enough for consultations with psychologists and almost none for emollients.

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REFERENCES

1. Silverberg JI, Simpson EL. Association between severe eczema in children and multiple comorbid conditions and increased healthcare utilization. *Pediatr Allergy Immunol* 2013; 24: 476–486.
2. Ezzedine K, Shourick J, Merhand S, Sampogna F, Taieb C. Perceived clinical severity of atopic dermatitis in adolescents: comparison between patients' and parents' evaluation. *J Am Acad Dermatol* 2021; 84: 164–165.
3. Ezzedine K, Shourick J, Merhand S, Sampogna F, Taieb C. Impact of atopic dermatitis in adolescents and their parents: a French study. *Acta Derm Venereol* 2020; 100: adv00294.
4. Pickard AS, Kohlmann T, Janssen MF, Bonsel G, Rosenbloom S, Cella D. Evaluating equivalency between response systems: application of the Rasch model to a 3-level and 5-level EQ-5D. *Med Care* 2007; 45: 812–819.

Table II. Impact of Out-of-pocket (OOP) costs by Atopy Burden Scale – Family (ABS-F)

OOP by ABS-A scale ($p < 0.0001$)*	Mean	Standard deviation	Minimum	Maximum
Quartile 1, €	141.42	171.54	8	1,048
Quartile 2, €	185.85	163.18	4	1,013
Quartile 3, €	296.36	340.27	4	2,104
Quartile 4, €	331.01	674.67	4	5,639