



Atopic Dermatitis and Self-Image Design: A Real-Life Study in Children Using Drawings

Camille Braun, MD, PhD,*† Magali Bourrel-Bouttaz, MD,‡§ Olivier Revol, MD,|| Virginie Verdu, RN,§ Anaïs Montagnon, RN,§ Frédéric Bérard, MD, PhD,§ and Audrey Nosbaum, MD, PhD†§

Abstract: Background: Atopic dermatitis (AD) induces alterations of external appearance and self-esteem, with impact on the personal development of the children. However, tools for estimating such suffering are lacking. We aimed to assess how children with AD represent themselves through their drawings.

Methods: In this retrospective study, we included children (<18 years) suffering from AD who followed the instruction “draw yourself with and without eczema” at the end of a routine follow-up consultation. Drawings were interpreted with the child and then classified in different analysis groups by 5 independent evaluators.

Results: A total of 64 children (41 [64.1%] girls and 23 [35.9%] boys, median [range] age 8 [3–7] years) made 64 drawings. Five groups of drawing were identified: “amputee” ($n=8$, 12.5%), “identical” ($n=18$, 28.1%), “sad” ($n=19$, 29.7%), “complex” ($n=11$, 17.2%), and “other” ($n=8$, 12.5%). Univariate analysis found that age was differently distributed among the different drawing groups ($P=0.0047$), as was the predominance of light colors ($P=0.038$). The distribution of the other variables (gender, investigator global assessment score, active AD, and duration of activity) was not different among drawing groups.

Conclusions: The drawing allows a majority of the AD children to express their self-image with and without eczema, as well as their feelings and their interactions with the environment and with their entourage. The visual tool proposed herein could be used during consultations, to (a) become aware of the need to treat AD, (b) better evaluate the impact of AD burden in childhood, and (c) adjust appropriately AD treatment.

Capsule Summary:

- No tools are currently useful to assess the alterations of external appearance and self-esteem induced by atopic der-

matitis. Such assessment is major for understanding the impact of the disease.

- In this retrospective study, we demonstrate that drawing with the simple instruction “draw yourself with and without atopic dermatitis” allows the identification of alterations of child’s body perception.
- Drawing tool is easily usable in clinical practice and can enlighten the parents and the physician about the consequences of the disease on each child.

From the *Service de Pédiatrie, Pneumologie, Allergologie et Mucoviscidose, Hôpital Femme Mère Enfant, Hospices Civils de Lyon, Bron, France; †Centre International de Recherche en Infectiologie, INSERM U1111, Lyon, France; ‡Cabinet de Dermatologie, Chambéry, France; §Service D’immunologie Clinique et Allergologie, Hôpital Lyon Sud, Hospices Civils de Lyon, Pierre-Bénite, France; and ||Service de Psychopathologie du Développement de L’enfant et de L’adolescent, Hôpital Femme Mère Enfant, Hospices Civils de Lyon, Bron, France.

Address reprint requests to Camille Braun, MD, PhD, Service de Pédiatrie, pneumologie, allergologie et mucoviscidose, Hôpital Femme Mère Enfant, Hospices Civils de Lyon, 59 Boulevard Pinel, 69500 Bron, France; E-mail: camille.braun01@chu-lyon.fr

C.B. and M.B.-B. have equally contributed to this study.

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INTRODUCTION

Atopic dermatitis (AD) is an inflammatory skin disease whose symptoms appear during early childhood in most cases.¹ It is characterized by eczema flare-ups, associating intense itch and cutaneous inflammatory lesions, interspersed with remission phases. The suffering of children with AD is illustrated by the deterioration of their quality of life,² as well as by the numerous mental complications that occur during the course of the disease^{3,4}: depression,⁵ anxiety,⁶ attention-deficit/hyperactivity disorder,⁷ or autism spectrum disorders.⁸

The lesions of AD modify the external appearance,⁹ and alter the self-esteem of affected children, as suggested by studies based on age-appropriate questionnaires.¹⁰ Despite this, children with AD are often undertreated,^{11,12} while expert advice supports

proactive treatment of the disease.¹³ Thus, tools for estimating this suffering appear to be needed. Moreover, body lesions can have an impact on the personal development of these children, leading to psychological disorders.¹⁴ Although many questionnaires have been adapted and validated for use with children, words may be insufficient to express feelings, especially for children whose abilities are still developing. Drawing may bring other aspects of linguistic expression.^{15,16}

It is well described that people express emotions through the arts, such as drawings, using literal and/or metaphorical images.^{16,17} In an essay published 10 years ago, Karen E Tatum analyzed the works of artists with chronic skin diseases and highlighted common fracture of their ego or self-perception, resulting in a disturbed body image.¹⁸ For instance, Frida Kahlo painted ~200 portraits, including many double portraits, as if different personalities coexisted within her; *autoportrait of Zelda Fitzgerald* showed similar expression.¹⁸

In medical context, drawings have been used to analyze the stress of children during the COVID-19 outbreak.¹⁹ However, drawings have rarely been used to assess the pain, stress, or suffering of sick children. Skin diseases, and particularly AD because of its visible character, lend themselves to this type of evaluation.

We hypothesized that drawing could be an appropriate mean for children with AD to express who they are, with and without eczema. To address this point, we analyzed drawings made by children with AD in the context of a consultation for AD follow-up, to assess how they represent themselves through their drawings.

METHODS

Study Design and Ethics

This retrospective study was carried out in 2 centers specialized in the management of AD: the Clinical Immunology and Allergology Department of the *Hôpital Lyon Sud* (Pierre-Bénite, France) and a dermatology practice located in Chambéry (France). It was approved by the *Commission nationale de l'informatique et des libertés* (French data protection commission). Written informed consent was obtained from the parents of the children to participate in this study.

Study Process

Children (age <18 years) with AD of different severity, who had an AD follow-up consultation between February 2019 and February 2020, were retrospectively included in this study in September 2021. AD was diagnosed by expert.

During the consultation, the following data were collected: age, gender, severity of eczema assessed by the investigator global assessment (IGA) score, active AD, and duration of activity perceived by the parents and expressed in months (“does your child have eczema several months in a row without interruption and if so, for how many months?”).

At the end of the consultation, the child was asked to draw a picture on a white sheet of paper. The instruction was: “draw yourself with and without eczema.” The child was then removed from the parents’ vigilance to leave him/her free in his/her artistic expression. The drawing was then analyzed with the child: does the drawing show the body? Was the body the same on both sides? If the drawing showed a scene: what did the child mean? If the drawing showed an emotion, which one was it? What are the predominant colors: light or dark colors? The drawing was then kept in the medical file. Consent to share the drawing with evaluators was obtained during this consultation.

Six evaluators then analyzed the drawings: a 63-year-old dermatologist, a 70-year-old general practitioner, a 50-year-old pediatrician, a 35-year-old nurse, a 60-year-old pharmacist, and a 62-year-old schoolteacher. The dermatologist, who analyzed the drawings first, proposed analysis groups for the drawings, and the other evaluators could then assign each drawing to one of these groups. To validate the inclusion of a drawing in a group, 4 evaluators had to have classified that drawing in the same analysis group; in case of disagreement, the drawing was classified in the “complex” group.

RESULTS

Cohort Description

A total of 64 children (41 [64.1%] girls and 23 [35.9%] boys, median [range] age 8 [3–17] years) made 64 drawings. Among them, 2 children did not follow the instructions and drew something other than themselves. The median (range) IGA score at the time of the consultation was 3 (1–4) years, 43 (67.2%) children had active AD according to their parents, and for them the median AD duration was 84 months (Table 1). There was a positive correlation between the age and the IGA score ($r=0.29$, 95% confidence interval: [0.04–0.50], $P=0.02$).

Drawing Analysis

A total of 5 groups of drawings were identified: “amputee” (8, 12.5% drawings), “identical” (18, 28.1% drawings), “sad” (19, 29.7% drawings), “complex” (11, 17.2% drawings), and “other” (8, 12.5% drawings), and each drawing was classified into a group (Table 1).

In all groups except for the “other” group, children represented only themselves, with different facial expressions or body schema depending on whether there was eczema or not. In the “other” group, the children drew themselves in a scene, within a story carrying a message.

In the “amputee” group, the body was different depending on whether it had eczema or not (Fig. 1A). The size and/or the integrity of the body were altered with AD, and were normal without AD. The median (range) age of children in this group was 4.5 (4–12) years, the median (range) IGA score was 2 (2–3), and 7 of 8 (87.5%) children had an active AD according to their parents (Table 1).

TABLE 1. Clinical Features of the Different Groups of Drawings

	Total	Other	Identical	Amputee	Complex	Sad	P
N	64	8	18	8	11	19	—
Age (years), median (range)	8 (3–17)	7.5 (4–12)	7.5 (5–14)	4.5 (4–12)	11.0 (4–17)	9.0 (3–17)	0.0047
Male gender, n (%)	23 (35.9)	4 (50.0)	7 (38.9)	3 (37.5)	4 (36.4)	5 (26.3)	0.82
Investigator global assessment score, median (range)	4 (3–5)	3.5 (3–4)	4 (3–4)	3 (3–4)	4 (3–4)	4 (3–5)	0.46
Currently active AD, n (%)	43 (67.2)	4 (50.0)	11 (61.1)	7 (87.5)	8 (72.7)	13 (68.4)	0.55
Duration of current AD activity, median in months (range)	84	69 (42–114)	90 (48–156)	54 (36–132)	114.5 (42–192)	96 (24–180)	0.13
Predominance of light colors, n (%)	40 (62.5)	8 (100.0)	11 (61.1)	7 (87.5)	5 (45.5)	9 (47.4)	0.038
Predominance of dark colors, n (%)	24 (37.5)	0 (0.0)	7 (38.9)	1 (12.5)	6 (54.5)	10 (52.6)	

AD, Atopic dermatitis.

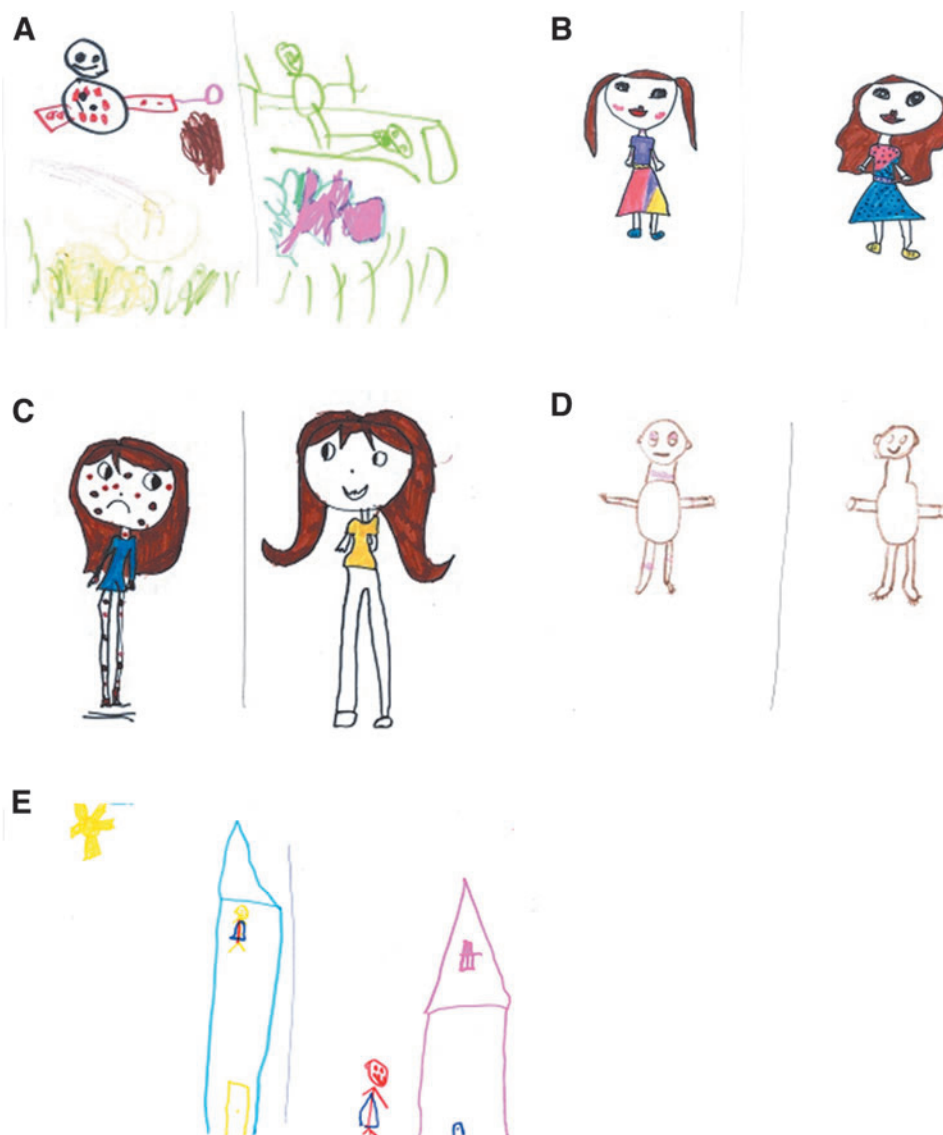


Figure 1. Examples of drawing from children with atopic dermatitis. (A) Example of drawing from the “amputee” group. Left drawing “with eczema,” right drawing “without eczema.” On the left drawing, 1 hand and legs are missing and eczema is visible. (B) Example of drawing from the “identical” group. The little girl is identical on the left (with eczema) and on the right (without eczema), except for the eczema that is visible on the cheeks on the left. (C) Example of drawing from the “sad” group. The little girl pouts on the left (with eczema) and smiles on the right (without eczema). (D) Example of drawing from the “complex” group. Left drawing “with eczema,” right drawing “without eczema.” The body is incomplete on the left and on the right, but the smile reappears in the absence of eczema. (E) Example of drawing from the “other” group. Left drawing “with eczema,” right drawing “without eczema.” The little girl cannot leave her house when she has eczema, she goes out when she does not.

In the “identical” group, the body was morphologically identical regardless of the presence of eczema; the eczema lesions were just visible or not (Fig. 1B). The median (range) age of children in this group was 7.5 (5–14) years, the median (range) IGA score was 3 (2–3), and 11 of 18 (61.1%) children had an active AD according to their parents (Table 1).

In the “sad” group, the body was morphologically identical on both sides (Fig. 1C). Sadness appeared on the body with eczema and a smile appeared on the body without eczema. The median (range) age of children in this group was 9 (3–17) years, the median (range) IGA score was 3 (2–4), and 13 of 19 (68.4%) children had an active AD according to their parents (Table 1).

In the “complex” group, the drawing revealed association of features and messages: amputation, sadness, inability to act in the presence of eczema, and freedom to act in its absence (Fig. 1D). The median (range) age of children in this group was 11 (4–17) years, the median (range) IGA score was 3 (2–3), and 8 of 11 (72.7%) children had an active AD according to their parents (Table 1).

In the “other” group, the children drew themselves within a scene, with a story carrying a message; the drawings related to fear, confinement, and lack (Fig. 1E). The median (range) age of children in this group was 7.5 (4–12) years, the median IGA score was 2.5 (2–3), and 4 of 8 (50.0%) children had an active AD according to their parents (Table 1).

Univariate analysis found that age was differently distributed among drawing groups ($P=0.0047$) (Table 1), and that the youngest children used light colors more, while dark colors were more used by older children ($P=0.038$). The distribution of the other variables (gender, IGA score, persistent eczema, and duration of persistence) was not different among drawing groups (Table 1).

DISCUSSION

Our study confirmed that drawing is an appropriate mean for children with AD to express who they are, and revealed an unsuspected impact of the disease from an early age. Children expressed how they personally perceived themselves, including the modifications of their body aspect (“identical” group: the representations were similar except for the presence or absence of skin lesions) until the amputation of the affected areas (“amputee” group), their feelings (“sad” group), and their interactions with the environment and with their entourage (“complex” and “others” groups).

These modifications appeared to change with age, as age was differently distributed among drawing groups. Children in the “amputee” group expressed through their drawings an alteration of their self-image that appeared early and independently of the persistence or severity of the eczema. The alteration of the self-image affected children at all ages, taking different forms with years. These results are in line with a previous study investigating adult artists suffering from skin disease.¹⁸

The cause of such alteration could be linked with peripheral neurosensory alterations associated with various skin or neurological diseases. Such alterations are involved in the modification of the body image.²⁰ We assume that, in AD, skin barrier defect, pruritus, allokinesia, and hyperkinesia,²¹ inflammation (including neuroinflammation)²² causes peripheral “dysperception,” defined as a proprioception distortion. This could then modify the neurodevelopment of children, as illustrated by well-known psychological and neurodevelopmental complications often affecting AD children.^{3,4}

All but 2 children complied with the instruction to draw themselves with and without eczema, thereby illustrating that the original methodology used was simple, adapted to the consultation format and to children. Moreover, the reading of the drawings, performed jointly with the child, was easy. Removed from parental attention, children could be personally involved in the drawing and express his or her conception of the body with and without eczema: children did not try to produce a “nice” drawing. This can help to understand, obviously partially, how children perceive their own body (self-image) and how AD affects this representation.

Importantly, some authors warn against the overly adult interpretation of children’s drawings,²³ which is why the interpretation of drawings should always be done in light of the children’s comments. In these drawings, the children let us learn things about themselves, which should not evolve into an overinterpretation that would risk distorting the initial message. Our approach did not aim to perform a psychological analysis of children, and even less to replace the views of psychologists. It simply consisted in observing what the presence or absence of AD changed in what the children expressed about themselves regardless of the complexity of their environment.

The presence of eczema affected the children’s self-image: this message reinforces the importance of an adequate treatment of AD, regardless of the severity of the disease. Indeed, despite the relative simplicity of treating AD, combining daily emollients and topical corticosteroids during eczema flares,²⁴ many children with AD receive little or no treatment. Many factors contribute to this phenomenon, including corticophobia^{25,26} or poor understanding of the disease and of its psychological complications.²⁷

The role of educational interventions is precisely to avoid such factors. We propose that this visual tool should be used during such educational interventions to let children express their emotions and self-image to the physicians and parents, as well as during classic consultations. In parallel, the use of mental and psychological health scores should be of interest, to correlate the drawing features with the mental state of the children. Moreover, it appears interesting to use drawings in prospective studies, for instance to assess the impact of the treatments on the children’s self-image.

CONCLUSION

Drawing gives the opportunity to children to express themselves in a medical setting. This original approach enabled to detect an

unsuspected impact of the AD from an early age, consisting in an alteration of their self-image. The instruction “draw yourself with and without eczema” is easy to use in clinical practice. Parents can then better appreciate the importance of treating AD, especially through educational interventions.

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