

prevalence is estimated to be 2%,<sup>1</sup> with higher rates among children and adolescents.<sup>2</sup> Patients with AA often have significantly impaired health-related quality of life, especially in psychosocial domains.<sup>3</sup> Assessment of the patient perspective in healthcare has received increased attention in recent years. With patient-reported outcomes measurements (PROMs), the patients' perspective on their health status can be incorporated in research and clinical practice.

Previously, five single-item PROMs have been developed to assess symptoms of AA, namely the Scalp Hair Assessment PRO™, PRO Measure for Eyebrows™, PRO Measure for Eyelashes™, PRO Measure for Nail Appearance™ and PRO Measure for Eye Irritation™.<sup>4,5</sup> Although adolescents have been involved in the developmental process of these instruments, content validity has been assessed only in adult populations.

Content validity is considered the most important measurement property of PROMs as it indicates the extent to which an instrument reflects the intended construct.<sup>6</sup> Psychometrics should be evaluated separately by age group, as the relevance of aspects and understanding of items and response scales can vary.<sup>7</sup>


In this issue of the *BJD*, Macey et al. report on the content validity of the aforementioned single-item PROMs in adolescents.<sup>8</sup> On the one hand, single-item PROMs have clear advantages. Firstly, they are brief, with minimal burden on patients. Secondly, symptoms can be easily documented and compared over time. On the other hand, single-item PROMs focus on only one symptom or one global assessment and do not give a more differentiated picture of the patient perspective.

The strength of a PROM is that it provides information about the patient's perspective, such as the perceived impact of a disease or treatment. However, incorporating this perspective into clinical research and daily practice is only possible to a limited extent when PROMs are used for describing objective symptoms. In four of the five PROMs in this study (all except the PRO Measure for Eye Irritation™),<sup>8</sup> objectively measurable symptoms are assessed (e.g. amount of hair loss). Interestingly, patients reported that physicians would most accurately rate these symptoms. This finding may indicate a patient perception of themselves as experts about their subjective experience, but less so for objective measures.

Overall, the results obtained from the interviews in this study give a comprehensive picture of the burden of AA among adolescents,<sup>8</sup> demonstrating significant psychosocial impact and varying importance of specific symptoms. However, these findings are not reflected by the PROMs, which mostly capture symptom descriptions.

To conclude, the five PROMs seem to demonstrate content validity for adolescents, while evaluation of further psychometric properties is pending. The major strength of these instruments is their brevity and utility. These instruments might be considered in time-limited settings and for monitoring longitudinal trajectories, but these PROMs are not suitable for a more differentiated assessment of the burden caused by AA. Accordingly, researchers and clinicians aiming to use PROMs need to consider the purpose of data assessment carefully and reflect both the content and target groups of the instruments available.

Acknowledgments: the author thanks Christine Blome and Patrick Reinders for their valuable feedback on earlier versions of this commentary, as well as Caroline F.Z. Stuhlmann for carefully proofreading of this manuscript.

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Conflicts of interest: the author declares they have no conflicts of interest.

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## Topical application of lipids to correct abnormalities in the epidermal lipid barrier

DOI: 10.1111/bjd.21294

**Linked Article:** Danby et al. *Br J Dermatol* 2022; **186**:875–886.

An efficient epidermal barrier is dependent on the production of a stratum corneum (SC) lipid matrix with the correct abundance and composition of different lipid classes – primarily ceramides, cholesterol and free fatty acids.<sup>1</sup> Altered SC lipid production has been implicated in the aetiology of

many skin conditions, including atopic dermatitis, psoriasis, dry skin and even skin ageing.<sup>2</sup> Changes in the relative abundance of different lipids, and reductions in the chain length of ceramides and free fatty acids alter the lamellar organization and packing of the SC lipid matrix, leading to impaired barrier function.<sup>1,3</sup> Therefore, interventions correcting SC lipid abnormalities have the potential to improve epidermal barrier function and the symptoms associated with a number of skin conditions.

Topical application of lipids has shown potential to restore a healthier SC lipid profile,<sup>4,5</sup> and in this issue of the *BJD*, Danby *et al.*<sup>6</sup> report the results of a randomized observer-blinded intrapatient-controlled study examining the effect of topical lipid application on skin affected by atopic dermatitis. In this study, 34 adults with dry eczema-prone skin applied a test cream to the forearm and lower leg on one side of their body, and a reference cream to the forearm and lower leg on the other side of their body, twice per day for 28 days. The test cream contained ceramides, triglycerides and cholesterol, as well as humectants. Following treatment, participants' skin was assessed for skin barrier function [transepidermal water loss (TEWL)], integrity (TEWL during sequential tape stripping), cohesion (protein removal during tape stripping), sensitivity (redness and TEWL in response to a sodium lauryl sulfate challenge), hydration (skin capacitance and visual skin dryness) and SC composition and structure [attenuated total-reflection Fourier transform infrared spectroscopy (ATR-FTIR)]. The test cream led to significant improvements in all clinical measures compared with the reference cream, and exploratory ATR-FTIR revealed changes in lipid content and packing in SC treated with the test cream.<sup>6</sup>

The mechanism by which topical lipids improve the SC lipid profile is not fully understood.<sup>2</sup> The lipids contained in the test cream have previously been shown to penetrate the SC,<sup>7</sup> and there is evidence from *ex vivo* skin that topically applied fatty acids are elongated and directly incorporated into the SC.<sup>8</sup> However, topical lipids may also upregulate keratinocyte lipid synthesis via activation of peroxisome proliferator-activated receptors.<sup>9</sup> Interestingly, the test cream appeared to have a greater effect size in older individuals, although this was not statistically significant possibly due to the sample size. Intrinsically aged skin in otherwise healthy individuals exhibits changes in SC lipids, with associated decline in skin barrier function.<sup>2</sup> Therefore, although this study focused on volunteers with atopic dermatitis, topical application of lipids may also prove beneficial for healthy older individuals. Indeed, an emollient containing plant oils has been shown to improve skin hydration and barrier function in older individuals.<sup>5</sup>

In conclusion, this study provides further evidence that topical application of lipids can help restore the lipid matrix of the SC, leading to improvement of clinical symptoms. The mechanisms of lipid restoration remain unclear, but this is a promising approach for the treatment of numerous inflammatory skin conditions.

Acknowledgments: we would like to thank Professor Rachel Watson for her helpful review of this commentary.

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Conflicts of interest: the authors declare they have no conflicts of interest.

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## The importance of accurate epidemiological data of epidermolysis bullosa

DOI: 10.1111/bjd.21295

**Linked article:** Petrof *et al.* *Br J Dermatol* 2022; **186**:843–848.

Epidermolysis bullosa (EB) is a clinically and genetically heterogeneous group of rare and currently incurable inherited disorders characterized by fragility of the skin and mucous