

required.³ The condition thus goes along with a marked economic burden for both the affected individual and society.¹

In the era of finite resources in a highly demanded healthcare system, health economics has become increasingly influential in the optimization of healthcare expenditure.⁵ Cost-of-illness studies summarize the financial burden of an illness on a given population.⁶ Without effectiveness evidence, data from such studies cannot sufficiently inform resource allocation. However, policymakers can utilize cost-of-illness findings to understand the magnitude of economic losses associated with specific illnesses;⁷ this can inform decisions on policies and treatment strategies to reduce the cost of an illness.⁷

To date, many studies have emerged evaluating the economic burden of AD.⁸ However, due to heterogeneous study objectives, methodologies and settings,^{6,7} their implications are limited to certain populations and healthcare systems. More comprehensive and up-to-date studies on the economic burden of AD are therefore needed, particularly in the U.K., where the last relevant study on the cost of AD was published in 1996.^{6,9}

In this issue of the *BJD*, Olsson *et al.* provide a comprehensive estimate of the economic burden of childhood AD in Singapore by assessing healthcare cost, cost for informal caregiving and other family expenses.⁴ The study showed that the economic burden of childhood AD is mostly attributed to informal caregiving (personal care, preparing special meals and providing emotional support) and out-of-pocket expenses (purchased products such as moisturizing creams and hygiene products, and laundry costs).⁴ The study findings suggest the need for policies to reduce the burden of informal caregiving and financial strain on families.⁴ Some aspects of caregiving can be aided by a range of supportive services to meet the holistic needs of patients and carers, including psychological support, access to social workers and occupational therapy.¹⁰ A dermatology specialist nurse can provide education, counselling and practical advice on the management of AD.¹⁰ Pressure on informal caregiving could be reduced by introducing manageable treatment regimens and improving access to appointments through conveniently located dermatology premises¹⁰ in the community, and out-of-hours services. Furthermore, increased severity of the disease contributes to a higher burden of disease,³ thus stressing the need for effective treatment.

Overall, comprehensive economic burden studies on AD suggest that there are unmet healthcare needs in AD. An interplay of effective dermatology consultations, evidence-based practice, patient-centred care, convenient services and effective policies is the recipe for high-quality care.¹⁰

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Optimizing audiovisual itch induction: the role of attention and expectancy

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Linked Article: Marzell *et al.* *Br J Dermatol* 2020; **182**:1253–1261.

In this issue of the *BJD*, Marzell and colleagues¹ show for the first time that the level of itch induced by audiovisual itch stimuli is not inferior to histaminergic itch after dermal priming. New insights into the underlying mechanisms of audiovisual itch induction can further optimize its effectiveness.

The itch-inducing property of audiovisual material has been described previously.² Itch contagion may serve a nocifensive function (i.e. signalling potential bodily threat),³ and it probably involves activation of an affective mirror neuron system.^{1,4} Audiovisual itch contagion has been described for both humans and nonhuman primates, but it does not seem effective in rodents.⁵ This underlines the role of higher-order cognitive processes, of which attention and expectancies will be highlighted below.

Focusing attention on itch cues is evolutionarily advantageous because it enables a protective response, for example removing a mosquito from your skin. Marzell et al. showed that audiovisual effects on itch are particularly strong after dermal priming (i.e. showing a nonitch-inducing skin-related video). They plausibly state that dermal priming would lead to attention being shifted in a way that it 'potentiates mental processes'.¹ Priming prioritizes subsequent stimuli presented within the same modality,⁶ arguably resulting in facilitation of the audiovisual material (whether somatosensory priming would result in prioritization of somatosensory input remains to be investigated). This focusing was further enhanced because the participants were instructed to report their bodily sensations and emotions. At the same time, showing neutral audiovisual material during the histamine provocation may have distracted participants from the histaminergic itch, similarly to the approximately 50% reduction in itch we previously observed during a simple visual task.⁷

Negative expectancies are known powerful itch amplifiers.⁸ In the present study, it is not unlikely that placebo iontophoresis induced nocebo effects on itch, amplifying the itch-inducing effects of the audiovisual itch induction. Marzell and colleagues' statement that somatosensory provocations induce anxiety¹ – which plays a key role in nocebo effects⁹ – is consistent with this hypothesis.

From this perspective, it is not surprising that audiovisual stimuli are more effective in patients with chronic itch.² The persistent clinical itch of these patients may induce a tendency to be attentive to itch stimuli, to expect itch and to interpret stimuli in the context of itch.^{8,10}

To conclude, advantages of audiovisual itch induction over histamine iontophoresis are noninvasiveness, more widespread distribution of audiovisual itch (representative of patients' symptoms) and less contamination by painful sensations.¹ Limitations of audiovisual itch include its inability to target specific body locations, and less control over induced scratching and the onset and duration of induced itch. The effectiveness of the method can be further enhanced by increasing the relevance (e.g. dermal priming) and inducing negative expectations (e.g. informing participants that the audiovisual stimuli induce quite some itch). Audiovisual itch stimuli may even be used as a short-lived human model of widespread chronic itch, for example by repetitively combining the presentation of the material together with a unique cue (i.e. conditioning), under ethical conditions. In summary, we agree with Marzell and colleagues¹ that audiovisual itch material can be very powerful.

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Developing risk prediction models for melanoma: balancing better predictive value with ease of clinical implementation

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One of the key elements in formulating beneficial screening guidelines for cancer is the development of highly predictive risk models. Predictive models identify individuals at highest risk of developing disease with the end goal of better targeting screening that leads, in theory, to improved clinical outcomes.

Multiple models for prediction of melanoma risk have been generated based on risk factors including age, sex, family history of melanoma and/or other keratinocyte cancers, naevi, Fitzpatrick skin type, freckling, eye and hair colour, sun exposure and sunburn history.^{1,2} Genetic risk determined using polygenic risk scores or presence of pathogenic variants in hereditary melanoma genes may further improve predictive value.^{3,4} Most melanoma risk models have not yet been