SHORT COMMUNICATION

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Atopic Dermatitis and Intercourse Difficulties: A Cross-sectional Study of the Northern Finland Birth Cohort 1966 Study

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Sexual well-being has a significant impact on the quality of life (1). Many diseases including those affecting skin can impair a person's sexual life diversely, decrease self-esteem or sexual attractiveness, or cause pain and itch (2). According to the previous multicentre study among dermatological patients from 13 European countries in which sexual difficulties were surveyed by 1 question in a dermatology-specific instrument, effects on sexuality were seen especially with hidradenitis suppurativa, prurigo, psoriasis, and eczemas (3).

Even though atopic dermatitis (AD) is one of the most common skin diseases with known decreased quality of life (4), its effect on sexual life has been poorly noted in the previous literature or studies have focused on selected study populations (5). According to a recent review article, individuals with AD have more sexual problems than healthy people (6). In a US study ($n=677$) sexual dysfunction was frequently reported among adults with AD and it was associated with young age, AD severity, and lesions on specific areas like the genitals and neck (7).

In order to add knowledge regarding AD and sexual life we aimed to study the effect of AD on sexual difficulties at population level among a middle-aged population belonging to the Northern Finland Birth Cohort 1966 Study (NFBC1966).

MATERIALS AND METHODS

This study is based on the NFBC1966 Study data collected since 1965. It included all children whose expected dates of birth fell in the year 1966 in the 2 northernmost provinces in Finland (12,058 liveborn children). Four main follow-up surveys were conducted when the cohort members reached the ages of 1, 14, 31, and 46 (8). The data includes information on people's background, lifestyle, and health.

In the 46-year follow-up participants responded to a health questionnaire. AD was recognized by the question "Have you had atopic dermatitis, a) in the last 12 months ('current AD') or b) earlier ('previous AD')?" "Life-time AD" included both current and previous AD in this study. Participants' sexual difficulties were recognized by the question "Do you currently have intercourse difficulties?".

Statistical analyses

The overall prevalence of AD and intercourse difficulties was calculated. Continuous variables were presented as mean and standard deviation (SD), while categorical variables were expressed as counts and percentage proportions. The disparity between AD and potential risk factors was assessed using the χ^2 test and Fisher's exact test and by the Mann–Whitney U test for continuous analysis. To explore associations between intercourse difficulties' presence and AD, logistic regression analysis provided crude and adjusted odds ratios (ORs) with corresponding 95% confidence intervals (CIs). Adjustment for potential confounding factors (**Table I**, Table SI) known to have an effect on outcomes according to previous literature was incorporated. Statistical analyses were conducted using R version 4.1.0 (R Foundation for Statistical Computing, Vienna, Austria), and statistical significance was established at a p-value <0.05.

Ethical statement

Approval for the study was granted by the Ethical Committee of the Northern Ostrobothnia Hospital District, adhering to the principles outlined in the 1983 Helsinki Declaration. All participants provided written informed consent for scientific purposes.

RESULTS

A survey was distributed to 10,321 study participants. The questionnaire garnered responses from 6,830 individuals (66.2%) of whom 3,715 (54.4%) were women. Some data were not available ($n=273$, e.g., refused

Table I. Association between atopic eczema and intercourse difficulties in Northern Finland Birth Cohort 1966 study

	"Do you currently have intercourse difficulties?"			
	No, $n=6,027$	Ye,s $n=530$	OR	aOR[a]
Atopic dermatitis				
No	4,421 (92.5%)	358 (7.5%)	Ref	
Current AD: "Have you had atopic dermatitis in the last 12 months?"	637 (90.9%)	64 (9.1%)	1.2 (0.89–1.61)	1.12 (0.82–1.52)
Previous AD: "Have you had atopic dermatitis earlier?"	785 (90.5%)	82 (9.5%)	1.33 (1.02–1.73)	1.36 (1.03–1.79)
Lifetime AD: "Have you had atopic dermatitis in the last 12 months or earlier?"	1,422 (90.7%)	146 (9.3%)	1.27 (1.03–1.55)	1.25 (1.00–1.55)

[a]Logistic regression model. Adjusted by sexual dysfunction (in males; own opinion concerning erection status [permanent erection dysfunction] and in females; own opinion concerning dryness of genital mucosa [moderate to severe]), female gender, obesity, physical activity, smoking, alcohol usage, menopause status (in females; own response to the question "Do you have menopause symptoms?"), depression and anxiety (by using Hopkins Symptom Checklist-25). Information on these factors was obtained from the health questionnaires of a 46-year follow-up study.
There were some missing data, as not all study cases answered all questions.

the use of data) and the final study population included $n=6,557$ subjects.

There were $n=1,568$ (23.9%) subjects with lifetime AD. The corresponding numbers for current and previous AD were $n=701$ and $n=867$, respectively. Sexual dysfunction was reported by $n=530$ (8.1%) of the cohort members. Subjects with lifetime AD had more intercourse difficulties (9.3%) than people without AD (7.5%) ($p<0.05$) (Table I).

In the logistic regression model the subjects with lifetime AD had a nearly 1.3-fold risk (OR 1.27, 95% CI 1.03–1.55) of having intercourse difficulties when compared with the controls. After adjusting for the confounding factors the risk was still increased (OR 1.25, 95% CI 1.00–1.55). Among those with previous AD, the risk of intercourse difficulties was nearly 1.4-fold when compared with the controls (aOR 1.36, 95% CI 1.03–1.79). The presence of current AD increased the risk of intercourse difficulties but did not reach statistical significance (aOR 1.12, 95% CI 0.82–1.52) (Table I). There was no interaction between the sexes ($p=0.90474$).

DISCUSSION

This population-based study among over 6,500 cohort members found that study cases with AD have an increased risk of having intercourse difficulties when compared with controls. The result remained statistically significant after adjusting for multiple confounding factors available due to the cohort study design.

Previous studies concerning the relationship between sexual dysfunction and dermatological conditions like AD are scarce (3). The US study among patients with AD reported that 1 in 5 of the patients had sexual difficulties due to their skin disease (7), which is clearly higher than ours (9.7%). The difference may result from the different age range of the subjects between studies (the US study included all adults whereas ours those aged 46), and especially from the fact that the US study was performed among patients in dermatology clinics, most likely representing more severe AD than our unselected population. However, other studies reported high prevalences as well: A multicentre study ($n=1,024$) from France found that AD had a negative impact on sex life, and that AD decreased sexual desire at least sometimes in 31% of the patients (5). Equally, in another French cross-sectional study ($n=266$), in over half of the patients (57.5%) sexual desire had decreased because of AD (9). In the same study the appearance (redness, dry skin) of AD affected sex life markedly and, in addition, 48.5% of the patients reported that the treatment of AD affected their sex life negatively (9). Noteworthy is that AD can affect not only the sexual life of the patient but also that of the partner (9). Unfortunately, it was not possible to analyse the partners' role in the present study.

AD can affect sexual life negatively in many ways. First, AD can cause itch and pain, which may predispose to intercourse difficulties or lower sexual desire. AD patients may be sensitive to touch and sweat, both often linked to sexual activity. Second, AD may affect physical appearance and thus lead to shame and low self-esteem. Third, the treatments for AD can cause distress in sexual life. Finally, AD can cause psychological symptoms and insomnia, each of which can affect sexual health (2, 3, 5, 10, 11). The present study strengthens these findings: AD can have longstanding consequences on sexual life as risk was increased both in current AD and in lifetime AD. This may result, e.g., from the fact that chronic skin disease can already decrease self-confidence in early life.

The major strength of this study is the large birth cohort data. The participation rate of the study was satisfactory and comparable to other cross-sectional European health studies (8). Moreover, the questionnaire concerning sexual difficulties had no direct link to AD in our study but part of the larger data collection and the study was not conducted among selected patients. As a limitation, the study results were based on self-reporting, which may have led to over- or underestimation. Nevertheless, self-reporting is widely used in health studies (12). Moreover, we did not have data on the localization of the AD. However, skin disease seems to affect sexual life regardless of the affected body area (3, 9). In addition, not all invited subjects participated in the study or answered all questions, leading to some missing data and, thus, this study cannot be generalized to the general population (8). In addition, this study did not include other questions concerning sexual life (e.g., intimacy).

In conclusion, individuals with AD were found to experience more frequent intercourse difficulties compared with their counterparts without the condition. In a clinical setting, it is necessary to give due attention to sexual issues among patients with AD; it is crucial to ask about sexual life alongside other aspects of their quality of life. Proper management of eczema appears to significantly enhance the sexual quality of life, highlighting the importance of comprehensive care in AD management (13).

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Data referral: https://etsin.fairdata.fi/dataset/716939c3-7a2a-4b6a-91f3-92aca09bc52d

Data availability: NFBC data are available from the University of Oulu, Infrastructure for Population Studies. Permission to use the data can be sought for research purposes via the electronic material request portal. In the use of data, the EU general data protection regulation ((EU) 2016/679) and the Finnish Data Protection Act are followed. The use of personal data is based on the cohort participant's written informed consent at his/her latest follow-up study, which may cause limitations to its use. Please contact NFBC project centre

(NFBCprojectcenter(at)oulu.fi) and visit the cohort website for more information.

The authors have no conflicts of interest to declare.

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