

Does Visible Atopic Dermatitis Affect Quality of Life More in Women Than in Men?

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ABSTRACT

Background: Studies have suggested that women overreport symptoms in nondermatologic disease. Gender-dependent differences in patients' perception of dermatologic disease are poorly described. The description of possible gender differences in morbidity in a skin disease with comparable prevalence in men and women may therefore provide relevant data.

Objective: The goal of this study was to examine gender-dependent differences in the self-reported morbidity of patients with atopic dermatitis (AD).

Methods: Questionnaires from members of the Atopisk Eksem Forening (Danish Association of Atopic Eczema) aged ≥ 15 years were analyzed. Data were gathered regarding age, sex, disease duration and severity, and localization of AD, including the results of the Dermatology Life Quality Index (DLQI), a quality-of-life questionnaire designed for use in adults (ie, patients aged ≥ 15 years).

Results: Questionnaires from 112 patients were analyzed. The final study population comprised 88 females and 24 males; mean age was 35.3 years (range, 15–77 years). For women, a significant positive correlation was found between DLQI score and disease severity ($P < 0.001$) and also between DLQI score and visible regions affected by disease ($P = 0.001$); these correlations were not observed in men. For the total number of body regions affected, a significant correlation with severity was found for women ($P = 0.001$) but not for men. No significant differences between men and women were noted for age, disease duration, overall disease severity, or quality of life as assessed using the DLQI.

Conclusion: Self-reported morbidity is highly consistent among women with AD, but not so among men. Normally visible areas of AD appear to affect women significantly more than men. (*Gender Med.* 2004;1:125–130) Copyright © 2004 Excerpta Medica, Inc.

Key words: atopic dermatitis, gender differences, self-reported diseases, severity, DLQI.

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INTRODUCTION

It is frequently observed that although they live longer than men, women report higher rates of morbidity, disability, and health care utilization.¹⁻³ A gender-dependent disparity would therefore appear to exist between morbidity and mortality. One common explanation for women's higher rates of morbidity reported in many studies⁴⁻⁶ is that sex-specific differences influence how symptoms are perceived, evaluated, and acted on. It is widely assumed that women not only are more ready to report illness and to seek help, but also have greater flexibility to accommodate illness. In a study of 215 psoriasis patients, Gupta and Gupta⁷ found that men were more afraid than women of losing their jobs and believed there were greater repercussions for taking time off from work for medical appointments. Compared with men in industrial countries, women have a shorter working day and can therefore more easily schedule medical visits. Also, in Denmark, primarily mothers take their children to medical appointments and thus have more contact with health providers. However, the few studies that have examined morbidity in men and women with the same conditions or symptoms (eg, a study of subjective symptoms after myocardial infarction,⁸ a study of diabetic patients,⁹ and a general British cross-sectional survey of women and men¹⁰) have yielded inconsistent results. In a study of patients with the common cold, Macintyre¹¹ did find that men were significantly more likely to overrate their symptoms compared with women ($P < 0.005$).

A MEDLINE search of relevant articles published between 1975 and 2004 yielded little gender-specific research in dermatology. A study by Roenigk and Roenigk¹² found lower morbidity among men with psoriasis compared with women, and further determined that because society tends to place less importance on the appearance of men, this reduces their psychosocial stress and thus morbidity. Another study by Schmid-Ott et al¹³ found that women with psoriasis believed they were more stigmatized than men. Studies relevant to atopic dermatitis (AD) included epidemiologic research by Olesen et al.¹⁴

For infants aged 0 to 1 year, they found a male:female ratio for AD of 1:1.25; for those aged 1 to 2 years, the male:female ratio was 1:0.8. Conversely, another epidemiologic study¹⁵ found a female preponderance among adults with AD.

Skin barrier function is a crucial area of research in AD. Diminished skin barrier function, decreased water content of stratum corneum, and increased blood flow to eczematous skin are found in patients with AD compared with controls.¹⁶⁻¹⁸ Gender differences have not been demonstrated for transepidermal water loss.¹⁹⁻²¹ An important component of skin barrier function is the composition of skin lipids, and no correlation has been found between the number of stratum corneum cell layers and the skin's lipid composition in either men or women.²²

Dermatologic conditions principally differ from other diseases by being public—that is, “visible”—and therefore immediately apparent to others. Attention to one's own appearance is not equally distributed between the sexes, and women are greater consumers of cosmetics and other appearance-enhancing products than men.²³ Skin disease may therefore be speculated to affect women's self-reported health to a higher degree.

The purpose of the present study was to examine gender differences in the self-reported morbidity of patients with AD.

PATIENTS AND METHODS

A questionnaire was sent to 250 members of the Atopisk Eksem Forening (AEF), the Danish Association of Atopic Eczema. In addition to patients ($n = 200$) and their families, the association includes physicians, nurses, and medical company representatives. In this study, we examined gender differences in persons with AD aged ≥ 15 years, because younger children's questionnaires were completed by a parent or guardian, and because self-perceived gender differences were expected to be smaller in prepubescent children.

In December 2002, all members of the AEF received a 12-item questionnaire devised by

the authors to assess patients' knowledge of and experience with AD. The questions covered general information such as sex, age, and duration of disease, as well as more disease-specific items. The respondents were asked to grade the severity of their skin disease (on a scale of 1–3) with the following question: Most of the time is your eczema mild (1), moderate (2), or severe (3)? In addition, a body chart was provided, on which respondents were asked to mark the areas affected by AD. The body was divided into 8 regions: 3 regions that are usually visible (head, neck, and hands) and 5 regions that are usually not visible (arms, breast and abdomen, back, legs, and feet). A score for each region was given (0 = absent or 1 = present). Maximum total visible score was 3 and the maximum total body score was 8. The remaining items (the results of which are not included in this article) asked patients about the cause and treatment of AD, what information sources they had used to obtain knowledge about the condition, expectations they had of an AD educational program, and whether their choice of education and/or employment was influenced by the presence of the skin disease.

The respondents were also asked to complete the Dermatology Life Quality Index (DLQI).²⁴ This questionnaire is designed for use in adults (ie, patients aged ≥ 15 years). It is self-explanatory and is usually completed in 2 minutes. Scores range from 0 to 30, where a high score is equal to diminished quality of life. Questions cover 6 areas of interest: (1) symptoms and feelings; (2) daily activities; (3) leisure; (4) work and school; (5) personal relationships; and (6) treatment. The general scoring guidelines provided by Finlay and Khan were used for the DLQI.²⁴

The local ethics committee (Hilleroed County Ethics Committee) approved the study. No oral or written consent from patients was required for participation.

Statistical Analysis

For parametric data, the Student *t* test and the likelihood ratio chi-square test were used. Kruskal-Wallis (KW) 1-way analysis of variance

was performed on the nonparametric data. With the KW test, observations are ranked regardless of which group they belong to; for each group, the sum of the ranks is calculated. The SYSTAT version 9.0S (SPSS Inc., Chicago, Illinois) statistical program was used to analyze all statistics. A *P* value of <0.05 was considered statistically significant.

RESULTS

Questionnaires were mailed to all 250 members of the AEF. A total of 182 (72.8% of total membership, ~91.0% of patient members) questionnaires were returned. Seventy of the 182 questionnaires were from patients aged <15 years or from unaffected members and were therefore not used. Of the 112 questionnaires analyzed, 109 were complete; 3 questionnaires had 1 to 2 questions unanswered but were considered adequate to be included in the further analysis. The mean age of our final study population was 35.3 years (range, 15–77 years); there were 88 females and 24 males. Gender differences in disease experience and body region location are shown in **Tables I** and **II**.

Gender, Disease Duration, and Severity

The 112 patients had a mean duration of AD of 28.6 years (range, 2–77 years). The mean disease duration was 79.3% (range, 5%–100%) of the patients' lifetime. Disease severity was mild in 31.8% (28/88) of females and 33.3% (8/24) of males; moderate in 51.1% (45/88) of females and 41.7% (10/24) of males; and severe in 16.0% (14/88) of females and 25.0% (6/24) of males. Severity was unknown for 1 woman. No significant differences between men and women were observed for age, AD duration, or disease severity.

Gender and Disease Location

Except for the region "feet," women marked AD more frequently than men for all locations. Women had a mean of 5.27 regions with AD, whereas men reported a mean of 3.95 (mean difference, 1.32; 95% CI, 0.47–2.16). This was highly significant for the head, neck, breast, and abdomen. For the visible regions (head,

Table I. Gender differences in atopic dermatitis (AD) by age, disease duration, severity, regions, and Dermatology Life Quality Index (DLQI) score.

	Females (n = 88)	Males (n = 24)
Age, mean (SD), y	34.2 (10.7)	39.2 (15.7)
Disease duration, mean (SD), y	28.0 (13.1)	31.1 (19.9)
Lifetime disease duration, mean (SD), %	80.3 (24.4)	75.5 (30.9)
Self-reported disease severity, no. (%)		
Mild	28 (31.8)	8 (33.3)
Moderate	45 (51.1)	10 (41.7)
Severe	14 (15.9)	6 (25.0)
No. of body regions with AD, mean (SD)	5.27 (1.8)	3.95 (1.9)
No. of visible regions with AD, mean (SD) [†]	2.35 (0.7)	1.75 (0.9)
DLQI score [†]	9.74 (6.4)	9.44 (6.2)

**P* = 0.001.[†]DLQI score is based on a scale from 0 to 30, where a higher score equals a diminished quality of life.

neck, and hands), 78.3% of the women reported that AD was present compared with 55.7% of the men. Women reported a mean of 2.35 visible regions and men reported a mean of 1.75 visible regions (mean difference, 0.60; 95% CI, 0.26–0.95; *P* = 0.001).

No significant correlation was noted between severity and the number of reported visible regions for either women (KW test, 5.8) or men (KW test, 5.0). For total body regions, a significant correlation with severity was found for women (KW test, 14.3; *P* = 0.001), but no correlation was found for men (KW test, 1.0).

Gender, Disease Severity, Location, and DLQI Score

The mean DLQI score for the study group was 9.67 (range, 0–29); no significant difference was observed between men (9.44) and women (9.74). A significant positive correlation was

Table II. Self-reported location of atopic dermatitis in 3 visible regions (head, neck, hands) and 8 different body regions (including the 3 visible regions) for both sexes. Values are given as number (%) of patients.*

	Females (n = 88)	Males (n = 24)
Body region involved		
Face [†]	73 (83.0)	13 (54.2)
Neck [‡]	67 (76.1)	12 (50.0)
Hands	67 (76.1)	15 (62.5)
Arms	69 (78.4)	15 (62.5)
Breast and abdomen [§]	48 (54.5)	6 (25.0)
Back	48 (54.5)	10 (41.7)
Legs	63 (71.6)	16 (66.7)
Feet	29 (33.0)	8 (33.3)
No. of visible regions involved		
1	13 (14.8)	12 (50.0)
2	31 (35.2)	6 (25.0)
3	44 (50.0)	6 (25.0)
No. of body regions involved		
1	4 (4.5)	3 (12.5)
2	4 (4.5)	2 (8.3)
3	7 (8.0)	6 (25.0)
4	10 (11.4)	4 (16.7)
5	19 (21.6)	4 (16.7)
6	19 (21.6)	3 (12.5)
7	18 (20.5)	0 (0.0)
8	7 (8.0)	2 (8.3)

*Percentages may not total 100 due to rounding.

[†]*P* = 0.003.[‡]*P* = 0.013.[§]*P* = 0.010.

found between the 3 different severity groups and DLQI score (KW test, 15.9; *P* < 0.001) and also between visible regions and DLQI score (KW test, 14.2; *P* = 0.001) for women; neither correlation was observed for men. No correlation was noted between age and DLQI score or between total body regions and DLQI score for either sex.

DISCUSSION

In the present study, women's ratings of the extent and impact of AD have greater internal consistency than those of men. Lesions located in visible areas diminished quality of life more in women than in men. We also noted that women

reported the presence of AD in far more anatomical regions than men did, although no differences were found in disease duration or overall intensity. This finding may reflect actual differences but is also in accordance with a study by Jemec and Serup.²⁵ They observed that, in a group of 72 healthy volunteers, subjective complaints of dry skin were more common in women than in men ($P < 0.001$), although neither clinical nor objective measurements showed any gender difference. They also found a significant correlation between self-reported severity and involved areas for women ($P = 0.001$) but not for men. This positive correlation suggests greater internal consistency in the women's response and supports the validity of the data.

It may be speculated that women have a culturally determined higher ideal of physical appearance than men and therefore give more attention to their skin, thus increasing the sensitivity of self-reported skin involvement. Patterns of observation may also play a role, because fewer men examine their skin with the same regularity as women. The detection threshold for skin disease may therefore be genuinely higher in men than in women, and women may thus be more precise in their self-assessment of dermatologic disease. For men, we found no correlation between disease severity and impairment of quality of life, or between visible regions and DLQI score. In contrast, women had a significant positive correlation between disease severity and impact on quality of life. Reduced quality of life was significantly linked ($P = 0.001$) to AD reported in the visible areas, such as on the head, neck, and hands, but not in the total body regions. This finding suggests that normally visible areas of AD appear to affect women significantly more than men.

Possible types of bias must be considered in the study population. Anyone in Denmark can become a member of the AEF; access to the association is unrestricted and does not involve registering of the member's sex, education, employment, or socioeconomic background. Subjects recruited from a patient organization, such as the AEF, are a select study population. These organizations may be expected to have a major-

ity of patients with moderate to severe disease who join because they have a greater need for information than those with mild or negligible disease. The benefit of this study population, however, is that the respondents have a higher likelihood of having a correct diagnosis of AD; they are generally informed about their disease; and they are often highly motivated to answer the questionnaire. Using a select study population may therefore positively influence the quality of data for self-reported aspects of the disease.

The greater number of women in the present study reflects a larger pattern of health care utilization. Women generally use more health services, and it has been estimated that 67% of women worldwide make all the medical choices in society.²⁶

No previous studies have specifically examined gender differences in AD, and data from epidemiologic studies^{14,15,27} are not consistent with the prevalence of AD between men and women.

CONCLUSION

We found that self-reported morbidity is highly consistent among women with AD, but not so among men. Normally visible affected areas appear to affect women substantially more than men. It is speculated that the differences in self-reported morbidity between men and women may reflect gender-specific differences in what is considered stressful, and in coping with the disfigurement of dermatologic disease. Our study suggests that patients with AD have gender-dependent differences in self-reported morbidity.

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