

Body Image Satisfaction among Patients with Female Acne

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To the Editor,

Acne vulgaris is a common skin disease among teenagers. Although it usually subsides in late adolescence, it remains present in up to a third of women in their 30s (1). Acne can have significant psychosocial effects, in addition to the pain and discomfort caused by its lesions (2). Body dissatisfaction among women negatively affects several aspects of their lives (3), and individuals' concerns about their appearance have become particularly pronounced in the social media era, especially among people with skin conditions (2). Our cross-sectional study was designed to determine whether characteristics of acne in adult females are associated with body satisfaction.

This study analysed data from the women's health study (WENDY), which included women in their 30s (4). As a part of WENDY, each participant's face and back were photographed. An experienced dermatologist (SPS or LH) assessed these images to assess the presence and severity of acne (1). The Body Image Concern Inventory (BICI) (5) was used to quantify body image as a part of WENDY. The BICI is comprised of 19 items, which the respondent rates on a Likert scale from 1 ("never") to 5 ("always"). Possible total scores range from 19 to 95, with higher total scores indicating greater body dissatisfaction.

The prevalence of acne was calculated. The distributions of categorical variables were presented as numbers and percentages. The categorical variables were tested by χ^2 test and continuous variables by Mann-Whitney U test. Linear regression analyses were used to estimate the association between acne and BICI total score. The following risk factors were included in the adjusted multivariate model: body mass index (BMI), education level, mental disorders, atopic eczema, psoriasis and rosacea. A p value of <0.05 was considered statistically significant.

A total of 1,918 women participated in WENDY (35% of the 5,404 invited). The mean age of participants was 35.3 years (4). Our study population comprised the 1,867 WENDY participants who agreed to be photographed. Acne was present in 585 participants (31.3%). Those with acne had higher BICI scores than those without ($p=0.021$; **Table I**). The linear regression analyses found that those with acne had a 1.4-fold

elevated risk of body dissatisfaction (odds ratio [OR] 1.4; 95% confidence interval [CI] 0.19–2.5; data not shown). This finding remained statistically significant after adjustment for the selected risk factors (OR 1.3; 95% CI 0.17–2.4; $p=0.024$). There was no significant association between acne severity and BICI score (data not shown).

A BICI of 72 or over is considered to be of clinical concern (5) but also lower cut-off values (55) have been suggested (6). None of our acne patients reached this threshold, but the mean score was significantly higher in those with acne than those without, suggesting greater self-consciousness about their appearance and a potentially greater psychological impact of the condition. A qualitative study conducted in the USA ($n=50$, mean age 28) also similarly reported appearance concerns among females with acne (7). A multicentre study conducted in dermatology clinics found that elevated appearance-related concerns among individuals with acne increased their likelihood of developing body dysmorphic disorders, which is itself a recognized risk factor for severe psychiatric disorders including suicidality (8).

Female acne typically occurs on the face (1), making it difficult to conceal in everyday life. Resultant concerns about appearance may be particularly limiting in an environment in which many interpersonal interactions are conducted online, via profiles that rely heavily on images and videos. Use of social media

Table I. Baseline characteristics and Body Image Concern Inventory results

	No acne	Acne ¹	p -value
N	1,282	585	
Body mass index, mean (SD)	26.0 (5.44)	26.2 (5.56)	0.495
Education			
No vocational education	69 (5.38%)	23 (3.93%)	
Vocational education	330 (25.7%)	146 (25.0%)	
University or applied sciences	883 (68.9%)	416 (71.1%)	0.350
Mental disorders			
No	1,195 (93.2%)	547 (93.5%)	
Yes	87 (6.79%)	38 (6.50%)	0.894
Atopic eczema, psoriasis or rosacea			
No	1,217 (94.9%)	565 (96.6%)	
Yes	65 (5.07%)	20 (3.42%)	0.142
BICI total score, mean (SD)	44.1 (12.0)	45.4 (11.6)	0.021

¹While acne was analysed, the severity was classified into four categories: none, almost clear, mild, moderate and severe. Acne severity was graded according to the Global Acne Grading System. For analysis "none" and "almost clear" were combined into a single group "no acne".

BICI:Body Image Concern Inventory; SD:standard deviation.

can drive the pursuit of various beauty ideals, such as flawless skin. The feeling among acne patients that they “do not fit in” can cause anxiety, lower self-esteem and social avoidance behaviour (2).

The main strengths of this study are its large, unselected study population and the fact that acne was diagnosed by dermatologists. However, it should be noted that the assessments were based on photographs, which may have compromised reliability. A key limitation of the study is its cross-sectional design. Respondents’ answers to the BICI questionnaire represented their concerns about their appearance, on the day of response, which may have varied from day to day.

In conclusion, adult women with acne (regardless of severity) reported higher levels of body dissatisfaction than those without, even when relevant confounders were considered. These results imply that acne can have a significant psychological impact. There is a need for increased awareness of body image concerns among patients with acne to support the early identification of issues and the implementation of appropriate psychosocial interventions.

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Data availability statement: The WENDY data can be made available upon request from the NFBC cohort center under certain conditions. The data can be requested from the NFBC cohort center, and the request directed to the WENDY research team. To support and encourage research collaborations, additional information can be found on the study’s webpage at <https://www-oulu-fi.pc124152.oulu.fi:9443/en/womens-health-study-wendy-protocol-population-based-study-assessing-gynecological-and-metabolic>. All previously collected NFBC1986 data can be found in the NFBC cohort catalogue at [https://www-oulu-fi.pc124152.oulu.fi:9443/en/university/faculties-and-units/faculty-medicine/northern-finland-](https://www-oulu-fi.pc124152.oulu.fi:9443/en/university/faculties-and-units/faculty-medicine/northern-finland-birth-cohorts-and-arctic-biobank/northern-finland-birth-cohorts)

[birth-cohorts-and-arctic-biobank/northern-finland-birth-cohorts](https://www-oulu-fi.pc124152.oulu.fi:9443/en/womens-health-study-wendy-protocol-population-based-study-assessing-gynecological-and-metabolic).

Ethics committee: The study was approved by the Ethics committees of Northern Ostrobothnia (49/2019) and Helsinki and Uusimaa (483/2020). Informed written consent to participate was obtained from all study participants.

The authors have no conflicts of interest to declare.

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