ABSTRACT

This paper reviews current evidence presented by recent studies on the impact of acne on psychosocial health. Study methodologies, including case-control and cross-sectional surveys, have demonstrated psychological abnormalities including depression, suicidal ideation, anxiety, psychosomatic symptoms, including pain and discomfort, embarrassment and social inhibition. Effective treatment of acne was accompanied by improvement in self-esteem, affect, obsessive-compulsiveness, shame, embarrassment, body image, social assertiveness and self-confidence. Acne is associated with a greater psychological burden than a variety of other disparate chronic disorders. Future studies with a longitudinal cohort design may provide further validation of the causal inference between acne and psychosocial disability provided by the current literature.

The interaction of acne and psychosocial issues is complex and, in adolescence, can be associated with developmental issues of body image, socialization and sexuality. Previous studies on the psychosocial impact of acne have documented dissatisfaction with appearance, embarrassment, self-consciousness, and lack of self-confidence in acne patients. Social dysfunction has also been observed, including concerns about social interactions with the opposite gender, appearances in public, interaction with strangers, and reduced employment opportunities.

The development of psychometric scales to measure the impact of disease on abstract concepts and the notion of Quality of Life (QoL) has facilitated greater understanding of the impact of acne on psychological well-being and socialization. This paper reviews the current evidence presented by some of these studies in evaluating the impact of acne on psychosocial health.

Case-control Surveys

The majority of studies on the psychosocial impact of acne have been case reports and case-control surveys. Although case-control design studies are rapid to perform and relatively inexpensive, disadvantages include potential bias, inability to predict events of precedence, and to provide estimates on prevalence, incidence, or relative risk. The majority of these surveys are based on small samples with responses compared to historical controls or responses from other disease categories (see Table 1).

Study	n	Instuments	Controls	Pre-treatment	Post-treatment
Kellet, et al.(1999)[1]	34	Hospital Anxiety Depression Scale	Normal population, general dermatology outpatients, psoriasis,	• Depression and anxiety scores greater than for general dermatology patients, psoriasis, and oncology	Improvement in obsessive-compulsiveness, shame, embarrassment perfectionism,

			oncology, and psychiatric patients	patients • Females had more emotional distress • 18% clinically significant depression • 44% clinically significant anxiety	self-consciousness, locus of control, body image
Gupta, et al. (1998)[2]	72	Carroll Rating Scale for Depression	Inpatients and outpatients with alopecia areata, atopic dermatitis, psoriasis	Depression scores higher than alopecia areata, atopic dermatitis, psoriasis outpatients 6% expressed active suicidal ideation compared to none in alopecia areata and 2% each in atopic dermatitis and psoriasis outpatients	
Mallon, et al. (1999)[3]	111	Dermatology Life Quality Index, Rosenberg measure of self-esteem, General Health Questionnaire 28, Short-Form 36	Population sample 18-64 yrs.	• 41% possible cases of non-psychotic psychiatric disorder • impairment in mental health, social functioning, energy, role limitations • mental health scores worse than for asthma, epilepsy, diabetes, back pain, arthritis, coronary artery disease • No correlation with acne grade	
Klassen, et al. (2000)[4]	130	Dermatology Life Quality Index, EuroQoL, Short-Form 36	Population sample 20-39 yrs.	Pain/discomfort, anxiety/depression, lower perceived health status	Improvement in all parameters
Lasek, et al. (1998)[5]	60	Skindex	Patients with psoriasis, benign skin lesions, healthy volunteers	Most bothersome feature of acne: appearance Functioning, emotions, and symptoms Greater effects on	Improvement in all parameters / older patients more likely to report no improvement in their acne

				QoL with more severe acne grade and age	
Krowchuk, et al. (1991)[6]	39	Piers-Harris self-concept scale	Normative	Embarrassment and social inhibition	embarrassment, social inhibition, greater acceptability of facial appearance to peers
Myhill, et al. (1988)[7]	94	Specific questionnaires	Adult normal controls, adolescent high school students	No difference compared to controls	Improved social assertiveness, social appraisal, confidence
Grahame, et al. (2002)[8]	34	Hospital Anxiety Depression Scale, Rosenberg self-esteem, Positive/ negative affectivity	Self control		self-esteem, positive affect anxiety, depression, negative affect
Van der Meeren, et al. (1985)[9]	40	Amsterdam biographic questionnaire, social anxiety scale	Normal adult and student population	neuroticism, psychosomaticism, anxiety	

Table 1: Case-control surveys: psychosocial effects of acne vulgaris

Psychological abnormalities include self-reported depression and anxiety, embarrassment, social inhibition, and psychosomatic symptoms including pain and discomfort. Of particular note is that clinically important depression and anxiety were reported in 18% and 44% of acne patients, respectively.[1] Furthermore, 6% of acne patients in one study reported active suicidal ideation.[2]

Patients with acne had greater impairment in mental health scores compared with those with asthma, epilepsy, diabetes, back pain, arthritis, or coronary artery disease.[3] Furthermore, acne

patients reported higher depression and anxiety scores when compared to psoriasis patients and those attending oncology or general dermatology clinics.[1,2]

Longitudinal evaluation of psychometric outcomes has demonstrated that effective treatment of acne was accompanied by improvement in self-esteem, affect, obsessive-compulsiveness, shame, embarrassment, body image, social assertiveness, and self-confidence. The majority of these patients were treated with oral isotretinoin (71%).[1,4-7]

Unemployment in acne patients was evaluated in 625 patients aged 18-30 years in Leeds, England. Controls were randomly selected patients from general practitioner records and matched for age and gender. This study revealed that unemployment levels were significantly higher among acne patients of both genders compared to controls (16% vs. 9% in males; 14% vs. 9% in females; $p<0.001$). However, social status, academic background, and intelligence were not included in the analysis.[10]

Cross-sectional Population Surveys

Cross-sectional studies are more rapid and less expensive to conduct than cohort studies. They are useful for controlling subject selection and controlling measurements, and can yield prevalence data. A particular limitation is the difficulty of establishing causal relationships or sequencing of events. There are a limited number of these studies in the literature evaluating the association of acne and psychological disturbances in the context of the general population (see Table 2).

Study	Sample	Psychometric Instrument	Controls	Findings
Aktan, et al. (2000)[11]	2657 students	HAD	Unaffected cohort	No difference in depression or anxiety scores
Smithard, et al.	317	SDQ	Unaffected	Higher levels emotional

(2001)[12]	students		cohort	and behavioural difficulties

Table 2: Cross-sectional surveys: psychosocial effects of acne vulgaris

A recent survey of 2,657 students from Turkey, aged 14-20 years, detected a prevalence of acne, anxiety and depression of 23%, 25%, and 13% respectively. In addition, the Hospital Anxiety and Depression scale (HAD), was administered to 308 acne patients whose responses were compared to responses of the same number of gender-matched controls. No differences were detected in the subscale scores for anxiety or depression in acne versus control subjects. Limitations of this scale include uncertain sensitivity and responsiveness in detecting psychological abnormalities in a relatively young outpatient population, and specificity in determining attributability of anxiety and depression to acne.[11]

In a survey of 317 students aged 14-16 from England, an age-appropriate, validated scale, i.e., the Strengths and Difficulties Questionnaire (SDQ), was used to assess psychological health. Subjects with acne were twice as likely to score in the borderline or abnormal range of the SDQ compared to unaffected students. Furthermore, the presence of acne was associated with higher levels of emotional and behavioral difficulties.[12]

Cohort Studies

While a prospective longitudinal cohort study is the most powerful trial design for evaluating incidence and investigating potential causes of psychosocial dysfunction in acne patients, such a survey has not been performed. A cohort of school children followed from pre-adolescence to early adulthood would be of particular value in determining the sequence of events in the complex interaction of acne and psychological changes of adolescence, and in providing estimates of incidence and relative risks of these outcomes. Such a survey may be a

relatively inexpensive extension or addition to longitudinal studies on general health in the pediatric population.

Summary

Acne vulgaris is associated with excess psychosocial morbidity, which can be reduced by effective treatment. Furthermore, acne is associated with a greater psychological burden than a variety of other disparate chronic disorders. The causal inference provided by current literature between acne and psychosocial disability requires validation by a longitudinal cohort evaluation.

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