

# An Update on the Presence of Psychiatric Comorbidities in Acne Patients, Part 2: Depression, Anxiety, and Suicide

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*Acne vulgaris (AV) is a chronic inflammatory skin disease that affects millions of people. Psychologic disorders such as depression, anxiety, and body dysmorphic disorder are common in patients with AV, and the reported prevalence of suicidal ideation and suicide completion in acne patients also is remarkable. Part 1 of this series provided an overview of the prevalence of psychologic disorders in patients with AV. Part 2 reviews depression, anxiety, body dysmorphic disorder, and suicidal ideation and completion seen in AV patients. Treatments available for acne patients with coexisting psychiatric illness also are discussed, along with the relationship between oral isotretinoin and depression and suicide.*

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**P**sychosomatics may play a role in the development of acne vulgaris (AV). In part 1 of this review, an updated introduction involving the prevalence of psychiatric comorbidities among acne patients was discussed.<sup>1</sup> Part 2 of this manuscript addresses key issues that are necessary for the practicing physician to consider when treating acne patients and provides detailed explanations to help answer these important questions.

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## **Does acne substantially alter a patient's emotional state?**

Several investigations have sought to determine the level of emotional distress experienced by AV patients. Numerous studies have examined the quality of life of acne patients. These studies also have inherently determined the type of emotional symptoms experienced, and in turn the effect these symptoms have on quality of life. Among the studies, 3 reported a statistically meaningful relationship between emotional disability and the quality of life of acne patients.<sup>2-4</sup> One study used the Skindex-16 questionnaire to assess the quality of life of acne patients. The emotional scores of acne patients were higher than scores reported by patients with inflammatory skin diseases such as eczema and psoriasis. Emotional scores were elevated even in cases in which only a few comedones were present.<sup>4</sup> Similar findings from another study showed that acne patients reported more emotional disability than patients with asthma, epilepsy, back pain, and arthritis.<sup>2</sup>

Sex, anatomic positioning of lesions, and severity may be risk factors that increase the likelihood of encountering emotional stress. For example, Kellett and Gawkrödger<sup>5</sup> noted that women who reported chronic acne were significantly more troubled by embarrassment than men ( $P < .0001$ ). A study by Krowchuk et al<sup>6</sup> confirmed these results. In addition, a great difference in emotional discomfort is seen between high and low severity acne groups when severity is patient rated.<sup>5</sup> The greatest mean differences between the high and low facial severity groups in one investigation were recorded on the shame and body image measures. In this study, no differences were seen between differing severities of acne on the trunk.<sup>5</sup> In another study, a self-rating of severe acne correlated with disapproval of facial

appearance, which subsequently correlated with embarrassment and social inhibition.<sup>6</sup>

The fact that acne patients self-rated their acne severity in these studies is noteworthy because it may indicate that self-perception of severity closely correlates with the emotional profile of a patient. Future studies may seek to examine the relationship between clinician-rated severity and patient emotional state.

### **Is there a meaningful elevation in the rate of suicide and suicidal ideation in patients with AV?**

Although there has been increasing interest in uncovering the role of risk factors in determining individual susceptibility to suicidal behavior, only a few studies have examined the effects of acne in precipitating the onset of suicidal ideation and completion. The evidence shows an increased frequency of suicidal ideation and suicide attempts in patients with AV. Picardi et al<sup>7</sup> measured the prevalence of suicidal ideation and suicide completion among patients with several dermatologic conditions by questioning 294 outpatients and 172 inpatients. Their central finding was that 7.1% of acne patients have suicidal ideation. No controls were utilized.<sup>7</sup> Other studies have shown an 8% (4/50)<sup>8</sup> and 5.6%<sup>9</sup> (4/72) prevalence of suicidal ideation. One survey that questioned 347 dermatologists about the suicidal behavior of their patients found that 178 patients attempted suicide and 28 committed suicide. The methods of suicide were not reported.<sup>10</sup> Most convincing, Purvis et al<sup>11</sup> found that problematic acne was associated with increased frequencies of suicidal thoughts and attempts in New Zealand secondary school students, which persisted after controlling for depressive symptoms and anxiety. Of the 9567 students surveyed, 23% reported suicidal ideation and 7.8% reported suicide attempts.<sup>11</sup> One population-based study (N=5238) in the United States claimed a 1-year prevalence of suicidal ideation to be 5.6% (representing approximately 10.5 million persons),<sup>12</sup> which is equal to or lower than all of the aforementioned rates.

It is interesting to point out that when depression and anxiety were controlled, Purvis et al<sup>11</sup> still demonstrated an alarming rate of suicidal thoughts and attempts. These data suggest that suicidal behavior rests largely on the mere presence of AV as opposed to the existence of comorbid psychologic illness. Cotterill and Cunliffe<sup>13</sup> reported 7 cases of suicide in acne patients from 2 dermatology clinics, and interestingly, only 2 of these patients were noted to have depression.

In contrast, Picardi et al<sup>7</sup> found that psychologic distress and impaired quality of life were the only

2 indices that correlated strongly with suicidal ideation. These findings are more consistent with mainstream psychiatric literature on suicidality, which indicates that patients with mental health problems are more prone to suicidal tendencies. Acne vulgaris patients fall into the category, as they have high rates of depression and body dysmorphic disorder. In one study, a notable relationship was seen in patients with depression and anxiety.<sup>14</sup> Premortary signs or prodromal indices of these maladies may be observed preceding the suicide event and include but are not limited to poor self-esteem, poor coping mechanisms, neuroticism, interpersonal conflicts, and difficulties at school.<sup>15-23</sup>

Finally, Picardi et al<sup>7</sup> discovered an association between female sex and suicidal ideation, but this female predisposition is a variable finding throughout the literature.<sup>24-26</sup> Similarly, the impact of acne severity on the onset of suicidality is debatable because of mixed results in the literature. The different methodologies of the studies may explain the inconsistent results, as some studies used the patients as evaluators of severity while others used the physician. It may be imperative to conduct investigations that use both clinician-rated severity and patient-rated severity to better understand if the evaluator of the severity index is an important factor in determining suicide risk.

Although there have only been a minimal amount of studies concerning suicidality, it is important for all healthcare providers, especially dermatologists, to be vigilant when treating acne patients with suicidal behavior.

### **Is there a subset of acne patients at increased risk for psychiatric illness?**

Disease severity and differences based on gender frequently have been examined for their increased association with psychiatric illness. A number of studies have found notable relationships with disease-severity indicators and symptoms of depression,<sup>27-29</sup> feelings of embarrassment,<sup>6</sup> and general psychiatric comorbidity.<sup>6,7,27-32</sup> For instance, Bowe et al<sup>33</sup> showed that 81.8% (9/11) of patients with severely graded acne also reported moderate distress and preoccupation with symptoms compared to 36.1% (22/61) of patients with mild acne. Two studies, however, have documented that there is no association between acne severity and the degree of anxiety and depression felt.<sup>34,35</sup> In another instance, scores on the emotional subscale were not notably related to the severity of acne, and in fact, patients with few comedones had high scores on the emotional index.<sup>4</sup> Because a correlation between severity and psychiatric morbidity does not always exist, even the most mild cases of

acne should be approached with the possibility of a comorbid psychiatric disorder.

Women experience 1.5 to 3 times more current and lifetime depression than men,<sup>32</sup> which appears to hold true for women with AV. Four separate studies have demonstrated that women who report chronic acne are more likely to be psychologically disturbed than male counterparts.<sup>3,5-7</sup>

**What is the role of psychomodulatory drug therapy and psychotherapy in treating acne patients with psychiatric comorbidities?**

Antidepressants used to treat depressive symptoms also have positively affected AV. Although the literature is largely anecdotal, it appears that olanzapine,<sup>36</sup> clomipramine hydrochloride,<sup>37</sup> and fluoxetine hydrochloride<sup>38</sup> have been successful. These drugs can decrease the obsessive urge but should only be used in patients who are willingly seeking help, as the drugs do not work in unmotivated patients.

The use of selective serotonin reuptake inhibitors (SSRIs) is considered to be a first-line therapy in patients with clinical depression. Therefore, SSRIs may be the best choice for acne patients with concomitant depression. In a case series, Moussavian<sup>39</sup> showed both improvement in acne and depression as well as increased confidence and self-esteem in patients given paroxetine hydrochloride 20 mg daily. It should be noted that the paroxetine was given in hopes of curing the depression. Acne clearance was a side effect. Interestingly, using fluoxetine hydrochloride or sertraline hydrochloride did not have similar effects, even though they are SSRIs.<sup>39</sup> Therefore, paroxetine appears to be most efficacious, though more research is needed.

The use of psychomodulatory drugs is important in patients with underlying psychopathologic disorders. However, the effect is seldom sustained with withdrawal of the drug therapies. In contrast, psychotherapy, which promotes self-insight, has been shown to promote long-term benefit in patients.<sup>40,41</sup> Psychotherapy has been scarcely studied in acne patients. As compared to controls, Hughes et al<sup>42</sup> found a remarkable improvement in acne with the utilization of biofeedback techniques. Another study that combined biofeedback, relaxation training, and cognitive behavioral therapy showed meaningful improvement in acne compared to controls (Table). In this investigation, recurrence of open and closed comedones was seen in individuals who discontinued psychotherapy.<sup>42</sup> Other psychiatrists have made similar observations when treating individuals with acne.<sup>36,43-45</sup> Results can be achieved in as few as 4 sessions, which occurred in one case of a 17-year-old adolescent girl.<sup>44</sup> Finally, eye movement

**Definitions for Psychotherapeutic Techniques Used to Treat Acne Vulgaris**

Term	Definition
Biofeedback	A method of treatment that uses monitors to feed back to patients physiologic information of which they are normally unaware. By watching the monitor, patients can learn by trial and error to adjust their thinking and other mental processes to control involuntary bodily processes such as blood pressure, temperature, gastrointestinal tract functioning, and brain wave activity
Relaxation training	A stress-reduction technique that uses a sequence of progressive exercises under the direction of a therapist to lower the level of anxiety and its neuromotor manifestations
Cognitive behavioral therapy	An action-oriented form of psychosocial therapy that assumes that maladaptive, or faulty, thinking patterns cause maladaptive behavior and negative emotions. Treatment focuses on changing an individual's thoughts (cognitive patterns) to change his/her behavior and emotional state

desensitization and reprocessing was used to treat acne excoriée in 1 patient. The patient remained symptom free after 6 months.<sup>38</sup>

**Is there a correlation between isotretinoin use and depression/suicide?**

The correlation between isotretinoin, depression, and suicide is a complicated issue. Most studies

have concluded that there is no clearly established causal relationship between isotretinoin therapy and depression.<sup>46-50</sup> Studies that have compared the risk for depression between oral antibiotic and oral isotretinoin treatment concluded that there is not an increased risk for depression in isotretinoin users.

In contrast, treatment of AV with oral isotretinoin has reduced psychiatric disturbances.<sup>46-48,51-54</sup> For instance, Kellett and Gawkrödger<sup>5</sup> investigated the effect of treatment with isotretinoin on the psychological and emotional maladies of acne patients. They concluded that isotretinoin treatment produced substantial differences across a number of psychological functions including depression, anxiety, and obsessive-compulsive disorder. In regards to emotional well-being, they found that there was a general but not significant trend of less distress, specifically with respect to shame and embarrassment. The researchers extrapolated that oral isotretinoin improved self-perception.<sup>5</sup> Similar results have been reported elsewhere.<sup>29,54,55</sup> Typical doses of isotretinoin, ranging from 0.5 mg/kg daily to 1 mg/kg daily, were used.<sup>56</sup> Similarly, there appears to be no increased risk for suicide among patients on isotretinoin therapy.<sup>47,57,58</sup> One study found the incidence of suicidal ideation in patients taking isotretinoin to be 0%, while the incidence of suicidal ideation in the control group of adolescents with moderate to severe AV was 1.4%.<sup>59</sup>

In contradistinction to the vast majority, Azoulay et al<sup>60</sup> published a population-based case-control study that showed a statistically significant relationship between oral isotretinoin use and depression ( $P \leq .05$ ). This study has been scrutinized for its use of a case-control design because it did not include patients who were exposed to oral isotretinoin in the control period and did not provide a control event rate for depression.<sup>61</sup>

## Conclusion

Acne vulgaris is a common skin disorder that has the powerful ability to alter the appearance of the skin in disfiguring ways. It affects many young people and is commonly considered to be a cosmetic issue only. The wealth of proof presented herein suggests otherwise. Taken together, these studies provide an undeniable consensus regarding the presence of psychiatric comorbidity, the extent of emotional discomfort experienced, and the risk for suicidal behavior afflicting acne patients. The studies may open new doors for future research, especially studies scrutinizing severity grading and psychotherapeutic modalities. Dermatologists as well as other healthcare specialists must be aware of these psychologic issues because of the serious consequences that can be manifested.

It may be prudent to provide a basic standardized psychiatric assessment upon clinical evaluation of new and current acne patients. Consistent utilization of this tool would allow clinicians to better identify coexisting psychiatric comorbidities in their patients and tailor a regimen to each individual patient that would help to optimize treatment outcomes.

## REFERENCES

1. Saitta P, Keehan P, Yousif J, et al. An update on the presence of psychiatric comorbidities in acne patients, part 1: overview of prevalence. *Cutis*. 2011;88:33-40.
2. Mallon E, Newton JN, Klassen A. The quality of life in acne: a comparison with general medical conditions using generic questionnaires. *Br J Dermatol*. 1999;140:672-676.
3. Sampogna F, Picardi A, Chren MM, et al. Association between poorer quality of life and psychiatric morbidity in patients with different dermatological conditions. *Psychosom Med*. 2004;66:620-624.
4. Hayashi N, Higaki Y, Kawamoto K, et al. A cross-sectional analysis of quality of life in Japanese acne patients using the Japanese version of Skindex-16. *J Dermatol*. 2004;31:971-976.
5. Kellett SC, Gawkrödger DJ. The psychological and emotional impact of acne and the effect on treatment with isotretinoin. *Br J Dermatol*. 1999;140:273-282.
6. Krowchuk D, Stancin T, Keskinen R, et al. The psychosocial effects of acne on adolescents. *Pediatr Dermatol*. 1991;8:332-338.
7. Picardi A, Mazzotti E, Pasquini P. Prevalence and correlates of suicidal ideation among patients with skin disease [published online ahead of print January 18, 2006]. *J Am Acad Dermatol*. 2006;54:420-426.
8. Khan M, Naeem A, Mufti KA. Prevalence of mental health problems in acne patients. *J Ayub Med Coll Abbottabad*. 2001;13:7-8.
9. Gupta M, Gupta AK. Depression and suicidal ideation in dermatology patients with acne, alopecia areata, atopic dermatitis and psoriasis. *Br J Dermatol*. 1998;139:846-850.
10. Humphreys F, Humphreys MS. Psychiatric morbidity and skin disease: what dermatologists think they see. *Br J Dermatol*. 1998;139:679-681.
11. Purvis D, Robinson E, Merry S, et al. Acne, anxiety, depression and suicide in teenagers: a cross-sectional survey of New Zealand secondary school students. *J Paediatr Child Health*. 2006;42:793-796.
12. Crosby AE, Cheltenham MP, Sacks JJ. Incidence of suicidal ideation and behavior in the United States, 1994. *Suicide Life Threat Behav*. 1999;29:131-140.
13. Cotterill JA, Cunliffe WJ. Suicide in dermatological patients. *Br J Dermatol*. 1997;137:246-250.
14. ergusson DM, Woodward LJ, Horwood LJ. Risk factors and life processes associated with the onset of suicidal behavior during adolescence and early adulthood. *Psychol Med*. 2000;30:23-39.

15. Beautrais AL, Joyce PR, Mulder T. Personality traits and cognitive styles as risk factors for serious suicide attempts among young people. *Suicide Life Threat Behav.* 1999;29:37-47.
16. Benjaminsen S, Krarup G, Lauritse R. Personality, parental rearing behavior and parental loss in attempted suicide: a comparative study. *Acta Psychiatr Scand.* 1990;82:389-397.
17. De Wilde EJ, Kienhorst IC, Diekstra RF, et al. The specificity of psychological characteristics of adolescent suicide attempters. *J Am Acad Child Adolesc Psychiatry.* 1993;32:51-59.
18. Shaffer D. Suicide in childhood and early adolescence. *J Child Psychol Psychiatry.* 1974;15:275-291.
19. Brent DA, Perper JA, Moritz G, et al. Psychiatric risk factors for adolescent suicide: a case-control study. *J Am Acad Child Adolesc Psychiatry.* 1993;32:521-529.
20. Brent DA, Kolko DJ, Wartella ME, et al. Adolescent psychiatric inpatients' risk of suicide attempt at 6-month follow-up. *J Am Acad Child Adolesc Psychiatry.* 1993;32:95-105.
21. Marttunen MJ, Aro HM, Lönnqvist JK. Adolescence and suicide: a review of psychological autopsy studies. *Eur Child Adolesc Psychiatry.* 1993;2:10-18.
22. Gould MS, Fisher P, Parides M, et al. Psychosocial risk factors of child and adolescent completed suicide. *Arch Gen Psychiatry.* 1996;53:1155-1162.
23. McKeown RE, Garrison CZ, Cuffe SP, et al. Incidence and predictors of suicidal behaviours in a longitudinal sample of young adolescents. *J Am Acad Child Adolesc Psychiatry.* 1998;37:612-619.
24. Gupta MA, Gupta AK, Schork NJ. Psychosomatic study of self-excoriative behavior among male acne patients: preliminary observations. *Int J Dermatol.* 1994;33:846-848.
25. Hintikka J, Viinamäki H, Tanskanen A, et al. Suicidal ideation and parasuicide in the Finnish general population. *Acta Psychiatr Scand.* 1998;98:23-27.
26. Kjølner M, Helweg-Larsen M. Suicidal ideation and suicide attempts among adult Danes. *Scand J Public Health.* 2000;28:54-61.
27. Pearl A, Arroll B, Lello J, et al. The impact of acne: a study of adolescents' attitudes, perception and knowledge. *N Z Med J.* 1998;1111:269-271.
28. Hughes JE, Barraclough BM, Hamblin LG, et al. Psychiatric symptoms in dermatology patients. *Br J Psychiatry.* 1983;143:51-54.
29. Cunliffe W, Hull SM, Hughes BR. The benefit of isotretinoin in the severely depressed/dysmorphophobic patient. Second International Congress on Psychiatry and Dermatology University of Leeds, UK (Abstract), 1989.
30. Niemeier V, Kupfer J, Demmelbauer-Ebner M, et al. Coping with acne vulgaris: evaluation of the chronic skin disorder questionnaire in patients with acne. *Dermatology.* 1998;196:108-115.
31. Kenyon FE. Psychosomatic aspects of acne. *Br J Dermatol.* 1966;78:344-351.
32. Angold A, Costello EJ, Worthman CM. Puberty and depression: the roles of age, pubertal status and pubertal timing. *Psychol Med.* 1998;28:51-61.
33. Bowe WP, Leyden JJ, Crerand CE, et al. Body dysmorphic disorder symptoms among patients with acne vulgaris [published online ahead of print May 10, 2007]. *J Am Acad Dermatol.* 2007;57:222-230.
34. Nestor MS. The use of photodynamic therapy for treatment of acne vulgaris. *Dermatol Clin.* 2007;25:47-57.
35. Welp K, Gieler U. Acne vulgaris: morphologic, endocrinologic, and psychosomatic aspects [in German]. *Z Hautkr.* 1990;65:1139-1145.
36. Gupta MA, Gupta AK. Olanzapine may be an effective adjunctive therapy in the management of acne excoriée: a case report. *J Cutan Med Surg.* 2001;5:25-27.
37. Kelly MW, Myers CW. Clomipramine: a tricyclic antidepressant effective in obsessive compulsive disorder. *DICP.* 1990;24:739-743.
38. Fontaine R, Chouinard G. An open clinical trial of fluoxetine in the treatment of obsessive-compulsive disorder. *J Clin Psychopharmacol.* 1986;6:98-101.
39. Moussavian H. Improvement of acne in depressed patients treated with paroxetine. *J Am Acad Child Adolesc Psychiatry.* 2001;40:505-506.
40. Gray P. The nature of therapeutic action in psychoanalysis. *J Am Psychoanal Assoc.* 1990;38:1083-1097.
41. Blatt SJ, Behrends RS. Internalization, separation-individuation, and the nature of therapeutic action. *Int J Psychoanal.* 1987;68(pt 2):279-298.
42. Hughes H, Brown BW, Lawlis GF, et al. Treatment of acne vulgaris by biofeedback relaxation and cognitive imagery. *J Psychosom Res.* 1983;27:185-191.
43. Kent A, Drummond LM. Acne excoriée—a case report of treatment using habit reversal. *Clin Exp Dermatol.* 1989;14:163-164.
44. Koblenzer C. Psychotherapy for intractable inflammatory dermatoses. *J Am Acad Dermatol.* 1995;32:609-612.
45. Arnold LM, Auchenbach MB, McElroy SL. Psychogenic excoriation. clinical features, proposed diagnostic criteria, epidemiology and approaches to treatment. *CNS Drugs.* 2001;15:351-359.
46. Marqueling AL, Zane LT. Depression and suicidal behavior in acne patients treated with isotretinoin: a systematic review. *Semin Cutan Med Surg.* 2005;24:92-102.
47. Chia CY, Lane W, Chibnall J, et al. Isotretinoin therapy and mood changes in adolescents with moderate to severe acne: a cohort study. *Arch Dermatol.* 2005;141:557-560.
48. Magin P, Pond D, Smith W. Isotretinoin, depression and suicide: a review of the evidence. *Br J Gen Pract.* 2005;55:134-138.
49. Ng CH, Schweitzer I. The association between depression and isotretinoin use in acne. *Aust N Z J Psychiatry.* 2003;37:78-84.
50. Ng CH, Tam MM, Celi E, et al. Prospective study of depressive symptoms and quality of life in acne vulgaris

patients treated with isotretinoin compared to antibiotic and topical therapy. *Australas J Dermatol*. 2002;43:262-268.

51. Gupta MA, Gupta AK, Schork NJ, et al. Psychiatric aspects of the treatment of mild to moderate facial acne. Some preliminary observations. *Int J Dermatol*. 1990;29:719-721.
52. Gupta MA, Gupta AK. The use of antidepressant drugs in dermatology. *J Eur Acad Dermatol Venereol*. 2001;15:512-518.
53. Wu SF, Kinder BN, Trunnel TN, et al. Role of anxiety and anger in acne patients: a relationship with the severity of the disorder. *J Am Acad Dermatol*. 1988;18(2, pt 1):325-333.
54. Rubinow D, Peck GL, Squillace KM, et al. Reduced anxiety and depression in cystic acne patients after successful treatment with oral isotretinoin. *J Am Acad Dermatol*. 1987;17:25-32.
55. Newton JN, Mallon E, Klassen A, et al. The effectiveness of acne treatment: an assessment by patients of the outcome of therapy. *Br J Dermatol*. 1997;137:563-567.
56. Hull SM, Cunliffe WJ, Hughes BR. Treatment of the depressed and dysmorphic acne patient. *Clin Exp Dermatol*. 1991;16:210-211.
57. Jick SS, Kremers HM, Vasilakis-Scaramozza C. Isotretinoin use and risk of depression, psychotic symptoms, suicide, and attempted suicide. *Arch Dermatol*. 2000;136:1231-1236.
58. Ferahbas A, Turan MT, Esel E, et al. A pilot study evaluating anxiety and depressive scores in acne patients treated with isotretinoin. *J Dermatolog Treat*. 2004;15:153-155.
59. Motley RJ, Finlay AY. How much disability is caused by acne? *Clin Exp Dermatol*. 1989;14:194-198.
60. Azoulay L, Blais L, Koren G, et al. Isotretinoin and the risk of depression in patients with acne vulgaris: a case-crossover study. *J Clin Psychiatry*. 2008;69:526-532.
61. Bigby M. Does isotretinoin increase the risk of depression. *Arch Dermatol*. 2008;144:1197-1199, 1234-1235.