measures should be developed to help them achieve socially and mentally a healthy childhood and adult life.

Information is needed about the proportion of children from broken homes who develop normally and the characteristics of their rearing which result in this healthy development, since we would like to emulate them in our foster homes and children's homes.

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PERSONALITY OF STUDENTS WITH ACNE VULGARIS

BY

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Skin diseases figure prominently in the growing literature on psychosomatic disorders. In some conditions it has come to be accepted, probably correctly, that psychological factors are important; in others their role is uncertain and the evidence is conflicting. See reviews by Goldsmith and Hellier (1954), Macalpine (1954), Norton and Smith (1955), and Obermayer (1955).

In acne vulgaris a widely held view is that of Mitchell-Heggs (1950), who states that "the acne subject is often of unstable, nervous make-up, and is prone to emotional disturbance." Characteristics of the acne sufferer noted by other authors are: obsessiveness and feelings of inadequacy giving rise to difficulty in social contacts (Halliday, 1949); a tendency to anxiety, obsessiveness, and introversion (Smith, 1951); and self-consciousness (Moloney, 1947). Wittkower (1951) made a detailed study of 64 cases and described four classes of personality among acne sufferers. His descriptions include many of the traits generally recognized as being part of a neurotic personality structure (perfectionism, tension, anxiety in social contacts, sensitivity to criticism, eagerness to be liked, harshness of conscience, and a tendency to self-reproach). Goldsmith and Hellier comment that "Wittkower's observations apply rather to those who complain of their acne than to those presenting acne during a routine examination," a criticism which may well apply to other studies.

However, the view that acne sufferers are neurotic is not shared by all dermatologists. Cohen (1945, 1961) has reviewed the literature and reported his own observations. Despite much evidence relating acne to personality difficulties—in particular, difficulties in

sexual adjustment—and the often clear relationship between exacerbations of the condition and environmental and personal stress, his own conclusion is that most patients with acne are not markedly neurotic. This view is in broad agreement with that of Obermayer (1955).

In addition to clinical observations, psychological tests have been used by a number of investigators. However, the results are equally inconsistent. Cohen (1945) used Lowenfeld's mosaic test, but was unable to demonstrate any difference between the personalities of soldiers with acne and controls. Narciso (1952) compared a group of college students with and without acne, using the Minnesota multiphasic personality inventory (M.M.P.I.). Significant differences were found on four of the nine scales (hysteria, psychasthenia, hypochondriasis, and schizophrenia). The differences were interpreted as indicating that the acne groups were more concerned about bodily function, less mature, more troubled by phobic or compulsive behaviour, more liable to mild depression, excessive worry, and lack of self-confidence, and more withdrawn than the controls. Geist (1957) used the M.M.P.I., Rorschach, and the "draw a person" test to compare five categories of skin disorder. He describes acne sufferers as psychoneurotic, with sexual difficulties, "schizophrenic diathesis," a tendency to develop conversion symptoms, and as having "the least control, the most impulsive behaviour, and infantile personalities." Pakesch and Kresbach (1959) used the Rorschach and Szondi tests and found some evidence of neurotic depression in acne sufferers, which they regarded as a reaction to the acne rather than a cause.

The main aim of the present investigation was to compare the personalities of three groups of students: (1) controls (free from acne); (2) students with acne who did not complain of it; and (3) students with acne who sought treatment for it. A second aim was to determine, independent of the personality test, the prevalence of reported psychological symptoms in the three groups during an observation period of one year.

Method and Procedure

To assess personality the Maudsley personality inventory (M.P.I.) was used (Eysenck, 1959). This gives measures of "neuroticism" and "extraversion" as defined within Eysenck's theory of personality. Neuroticism refers to the "general emotional lability of a person, his emotional over-responsiveness, and his liability to neurotic breakdown under stress. Extraversion refers to the outgoing, uninhibited social proclivities of a person." The advantages of the M.P.I. for the present study were: (1) it is simple to administer, (2) it is of established reliability and validity, and (3) it would be likely to distinguish persons with the kind of traits noted as characteristic of the acne sufferer.

During the latter part of the first term of the 1959 session, students who attended for health examination were asked to complete the M.P.I. At the end of their examination note was made of the presence or absence of clinically obvious acne of the face or back, and of whether or not the student made any complaint about his skin. In addition, students who came for a consultation at the health centre seeking treatment for acne were asked to complete the M.P.I. The collecting of cases and controls was concluded at the end of the term. The results of the personality tests were analysed at the

end of the academic year, and at this point the case record of each student was examined and a note made of whether or not during the year he had attended the health centre complaining of clear psychological symptoms.

Results

Of the 44 students who took part in the study, 15 were controls (free from acne), 12 had acne but made no complaint of it (acne-non-complaining group), and 17 had acne and sought treatment for it (acne-complaining group). The groups were of comparable age and sex distribution (Table I).

TABLE I.—Age-and-Sex Distribution of the Three Groups of Students

	Controls		Acne-non-complaining		Acne-complaining	
	No.	Mean Age	No.	Mean Age	No.	Mean Age
Males	8	19.8	10	19.4	11	19.5
Females	7	21.6	2	18.5	6	21

Sex distribution: $\chi^2=2.70$. N.S.

The results of the personality test are given in Table II. To test the differences between the mean scores, an analysis of variance was carried out for both neuroticism and extraversion (Tables III and IV). The differences are not significant.

TABLE II.—Neuroticism and Extraversion Scores of the Three Groups of Students

	Controls (15)	Acne-non-complaining (12)	Acne-complaining (17)
Mean N score	21.20	22.42	23.12
„ E „	23.46	22.75	26.12

TABLE III.—Analysis of Variance of Neuroticism Scores in the Three Groups of Students

Source of Variance	D.F.	Sum of Squares	Mean Square	Variance Ratio	P
Between groups	2	29.19	14.59	0.093	Not significant
Within „	41	6,461.08	157.59		

TABLE IV.—Analysis of Variance of Extraversion Scores in the Three Groups of Students

Source of Variance	D.F.	Sum of Squares	Mean Square	Variance Ratio	P
Between groups	2	95.44	47.72	0.515	Not significant
Within „	41	3,798.74	92.65		

Thus in the present investigation students with acne and students with acne who complained of it were no different, in terms of neuroticism and extraversion as measured by the M.P.I., from students free from acne.

In order to make a comparison between the three groups, independent of M.P.I. scores, the number of subjects who had sought treatment for psychological symptoms during the year was determined from an examination of the case-notes. The symptoms reported were mainly of anxiety—most commonly tension and insomnia associated with study difficulty or other problems. Two were more severe long-standing personality problems. There were as many subjects with symptoms in the control groups as there were in the acne groups (five in the control group, two in the acne-non-complaining group, and five in the acne-complaining group). Thus the acne groups scored no

higher on a measure of neuroticism than did the control group, nor were they more prone to report psychological symptoms.

When the presence or absence of reported psychological symptoms was related to N and E scores, it was found that those with such symptoms had a significantly higher mean score on neuroticism but not on extraversion (Table V). This difference indicates that the N scale successfully discriminated students who reported clear psychological symptoms from students who did not, and suggests that the negative findings in respect of the acne and control groups are unlikely to be due to the invalidity of the test.

TABLE V.—Neuroticism and Extraversion Scores of Students Who Did and Did Not Report Psychological Symptoms

	Symptoms Reported (12)	Symptoms Not Reported (32)	t	P
Mean N score ..	33	18.27	4.612	0.001
„ E „ ..	21.75	25.25	1.088	N.S.

Discussion

This study has shown no difference in personality, or in the frequency of psychological symptoms, between students with acne—whether they complained of it or not—and controls. The finding accords with that of Cohen (1945) and of Obermayer (1955). Sainsbury (1960) used the M.P.I. to study “psychosomatic” conditions among hospital out-patients. Of 22 conditions, acne was one of the four which were no different from a control group. It is of interest that Sainsbury’s acne group, like the complainers in the present study, tended to be more extraverted, although in neither study was the difference significant.

In conditions as common as acne vulgaris and neurosis it is clear that in some persons both must occur together. When they do so, and especially if both are severe, the two conditions may interact. A preoccupation with the skin may develop, with squeezing, picking, and the excessive application of various treatments. The ensuing clinical picture is often striking; in the present series there was one such subject, a long-standing anxious obsessional who spent two hours a day in a “ritual” treatment of his skin. Another case seen recently (not included in the present study) was that of a girl with intractable recurrent acne of the chest. The condition was perpetuated by long periods of fondling and pinching of the lesions, which was pleasurable in nature (if not frankly erotic). These periods were followed by guilty “disinfecting” of the lesions with strong solutions. Many similar cases are recorded in the literature, and are akin to the classical “acne excoriée des jeune filles.”

However, before accepting the hypothesis of a more than chance relationship between emotional difficulties and acne (however interesting the ensuing interaction may be), it is necessary to obtain substantiating evidence from group studies, and to compare sufferers with controls. This was attempted in the present study, which sought to relate the presence or absence of acne, and whether or not treatment was asked for, to a personality measure of known reliability and validity, and to the presence or absence of reported psychological symptoms.

A limitation of the study was that it contained too few cases to make comparisons of neuroticism, and of

whether or not a complaint was made, if the groups were subdivided in terms of the severity of their skin trouble. Most had not the severe, or intractable, type of lesion which is common in skin clinics. However, it is *a priori* probable that if neurotic difficulties contribute directly to the development of acne they would do so in the milder as well as in the more severe types of the condition. A further study is planned to examine these points and to determine whether or not those subjects who observe exacerbations of their lesions in response to stresses differ from those in whom fluctuations in severity appear to be random.

Summary

A study is reported of a comparison between the personalities of students with acne who complained of it, students with acne who did not complain of it, and students free from acne. Personality was assessed by means of the Maudsley personality inventory. There was no significant difference between the mean score of the groups on neuroticism or extraversion.

To complement the psychological test, the number of the students who reported psychological symptoms during the year was ascertained. They were as frequent in the control as in the acne groups.

When a comparison was made between students who reported psychological symptoms and those who did not (regardless of whether or not they had acne), it was found that the group who reported psychological symptoms were significantly higher on neuroticism than the others.

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The National Council for the Care of Old People has compiled a register of research being done in the social and socio-medical fields of old people's welfare. *Old Age: A Register of Social Research* is divided into sections under "Universities"; "Research Institutions"; "Hospital Authorities"; "Old People's Welfare Committees"; and "Other Organizations." The information contained in the booklet is doubly indexed under organizations and subjects. The publishers are the National Corporation for the Care of Old People, Nuffield Lodge, Regent's Park, London N.W.1, and the booklet costs 10s.

Medical Memoranda

Severe Watery Diarrhoea and Potassium Depletion Associated with an Islet-cell Tumour of Pancreas

Verner and Morrison (1958) reported the association, in two patients, of severe watery diarrhoea, renal failure, and islet-cell tumours of the pancreas, and drew attention to seven other cases in the literature. The purpose of this paper is to report a further case that showed certain unusual features.

CASE REPORT

Six months after an operation for appendicitis in 1951, and coinciding with an emotional disturbance, this 19-year-old woman developed watery diarrhoea with six to eight stools daily, accompanied by much flatus. Investigation revealed no pathogens in the stool and no blood or excess fat. Sigmoidoscopy and a barium-enema examination showed nothing abnormal. A fractional test meal showed a low acid curve with a poor response to histamine. A provisional diagnosis of ulcerative colitis was made, and a course of tetracycline and dilute hydrochloric acid given. The diarrhoea decreased but did not disappear.

The patient was not seen again until 1956, when she returned with an exacerbation of diarrhoea. During the intervening years she had had continuous but variable watery diarrhoea and had never passed a formed stool. She had married, and during two pregnancies there was a marked reduction in the severity of the diarrhoea. On this admission a course of phthalylsulphathiazole and cortisone failed to influence the symptoms.

A further exacerbation of diarrhoea associated with abdominal cramps and vomiting occurred in January, 1957, and the patient was readmitted for investigation. An unexplained polymorphonuclear leucocytosis of 95% of 35,000/c.mm. was discovered, with hypokalaemia, the serum potassium being 2.2 mEq/l. (11 mg./100 ml.). A barium follow-through suggested some narrowing of the terminal ileum, and the possibility of Crohn's disease was considered. The large volume of the stools was noted for the first time. Prednisolone, 5 mg. t.d.s., and potassium supplements were given, but the bowel symptoms remained unchanged until June, 1957, when she was again pregnant, and for two months the diarrhoea decreased in severity.

When next seen, in January, 1959, there was further diarrhoea with colic and vomiting; muscle weakness was marked, and she experienced severe thirst, drinking up to 10 pints (4.5 litres) of water daily. Examination revealed some wasting of the musculature and generalized weakness with sluggish tendon reflexes; the abdomen was not distended. There were no other abnormal signs. Investigation showed Hb, 115%; W.B.C., 23,300/c.mm. (polymorphonuclears 79%). Serum electrolytes revealed a hypokalaemic acidosis, 2.1 mEq/l. (see Chart). An electrocardiograph showed ST and T wave changes compatible with hypokalaemia. Variable proteinuria was present, but the urine deposit was normal and the blood urea 40 mg./100 ml. Barium follow-through and enema examinations showed only dilated bowel and a normal rate of passage; no abnormality of small-intestinal mucosal pattern was seen. Sigmoidoscopy showed nothing abnormal. Oral potassium supplements relieved the muscle weakness and the serum potassium rose (see Chart). Severe tetany then developed, unrelieved by intravenous calcium gluconate or by breathing 5% carbon dioxide and oxygen.