CLINICAL REPORT

Recognition of Depressive and Anxiety Disorders in Dermatological Outpatients

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Although mental disorders are frequent among dermatological patients, little is known about their recognition by dermatologists. This study aimed to assess dermatologists' ability to recognize depressive and anxiety disorders. All adult outpatients who visited four dermatologists on predetermined days ($n = 317$) completed the 12-item General Health Questionnaire (GHQ-12) and the section on depressive and anxiety disorders of the Patient Health Questionnaire (PHQ). Dermatologists, masked to GHQ-12 and PHQ scores, rated patients' mental health status. The analysis was performed on 277 patients (87%) with complete data. With the PHQ as criterion standard, the dermatologists' assessment sensitivity was 33%, while specificity was 76%. In most cases of disagreement between the dermatologists and the PHQ, the GHQ-12 corroborated the PHQ classification. Anxiety disorders tended to be recognized better than depressive disorders. Among patients with a PHQ diagnosis, male gender tended to be associated with misclassification by dermatologists.

Although limitations inherent in self-report psychiatric assessment should be considered, this study suggests that mental disorders often go unrecognized in dermatological patients. This issue might be addressed by implementing specific training programmes, using validated screening questionnaires for depression and anxiety, and developing rational consultation-liaison services. *Key words: skin diseases; mental disorders; diagnosis; psychosomatic medicine.*

Over the last two decades, the issues of the prevalence, recognition and management of psychiatric morbidity in non-psychiatric settings have been the object of many studies. These studies have shown that mental disorders are quite prevalent and yet often go unrecognized in various non-psychiatric settings such as primary care (1, 2), general hospital wards (3), cancer centres and hospitals (4), gynaecology and obstetrics clinics (5).

This is a cause for concern, because concurrent mental disorders can exacerbate the effects of medical illness, may be an independent source of suffering and disability (6), and have been found to be associated with poor medication adherence (7). Given that effective treatments for most mental disorders are available, their under-recognition and consequent under-treatment are particularly regrettable.

Mental disorders are frequent among dermatological patients. Epidemiological studies reported prevalence estimates ranging from 21% to 43% (8–12), and showed that the most frequent mental disorders in patients with skin diseases are depressive and anxiety disorders (10). The presence of a concurrent mental disorder is particularly frequent in patients with acne, pruritus, urticaria, alopecia, psoriasis or vitiligo (8, 11). Despite the high prevalence of mental disorders among patients with skin diseases, little is known about their recognition. So far, only one study has been performed, in London in the late 1980s. In this study, dermatologists were asked to rate their patients on a 5-point scale of emotional distress, and their ratings were compared with the results of an independently administered psychiatric clinical interview. It was found that a substantial proportion of psychiatric morbidity went undetected (9).

In the present study, we aimed to assess dermatologists' ability to recognize depressive and anxiety disorders, and also to identify patients' characteristics possibly associated with misclassification of psychiatric morbidity.

METHODS

Patients and investigational settings

The study was carried out at the outpatient clinics of the Istituto Dermopatico dell'Immacolata (IDI-IRCCS) in Rome. This is the largest dermatological institution in Italy, and is attended mainly by patients from the central and southern regions.

The study involved the Clinical Epidemiology Unit and four dermatologists (three men and one woman). One of the dermatologists had over 20 years' clinical experience, the other three each had approximately 10 years' experience. The study protocol was approved by the institutional ethical committee.

All outpatients aged 18 years or older who were seen by

these dermatologists on predetermined days were approached in the waiting room by a research assistant who explained the study and asked them to participate. Patients were invited to sign an informed consent form, to complete the research questionnaire, and to return it in a sealed envelope to their dermatologist during the visit.

Instruments

The questionnaire included a small section on sociodemographic variables, the Patient Health Questionnaire (PHQ), and the 12-item version of the General Health Questionnaire (GHQ-12).

The PHQ is a fully self-administered version of the PRIME-MD (Primary Care Evaluation of Mental Disorders), an instrument developed to diagnose specific psychiatric disorders using criteria from the DSM-III-R (13) and DSM-IV (14). The validity of the PHQ has been repeatedly tested against independent diagnoses made by mental health professionals who administered a structured clinical interview (2, 15). The operating characteristics of the PHQ were found to be satisfactory, with good sensitivity and excellent specificity. The PHQ consists of a number of sections, each focused on specific psychiatric conditions such as depressive disorders, anxiety disorders, eating disorders, somatoform disorders, or alcohol abuse. Each PHQ section can be used independently. Given that depressive and anxiety disorders account for most psychiatric morbidity among patients with skin diseases (10), we used only the sections on depressive disorders and anxiety disorders in the Italian version of the PHQ.

The GHQ-12 (16) is a self-administered questionnaire that has been widely used to detect minor psychiatric disorders in community and general practice settings. The Italian translation of the GHQ-12 has been shown to be valid and reliable (17), also in patients with skin diseases (18).

For each patient examined, the dermatologists were asked to complete a standardized form, which was printed outside the sealed envelope that patients returned to them. Using the standardized form, the dermatologists indicated the diagnosis and the location of skin lesions. They also rated the severity of the skin disease on a 5-point scale previously used in quality of life studies (19). Furthermore, they rated the mental health status of each patient on a 5-point scale. The possible responses were: 'absence of psychological distress' (0); 'no mental disorder, presence of modest psychological distress not requiring treatment' (1); 'presence of a mental disorder of mild severity not requiring referral to a psychiatrist' (2); 'presence of a mental disorder of moderate severity requiring referral to a psychiatrist' (3); 'presence of a severe mental disorder requiring substantial psychiatric care' (4). This 5-point scale had been explained, discussed and tested with the dermatologists before the start of the study, to ensure a consistent assessment of mental health status.

Data reduction and statistical analysis

At the end of each work day, the dermatologists returned all sealed envelopes to the research assistant, who opened the sealed envelopes and entered all data in an electronic database. The PHQ scoring algorithm was used to generate psychiatric diagnoses. The GHQ-12 was scored with the binary scoring method, collapsing adjacent responses to obtain a dichotomous scoring. For instance, if a subject answered that he or she could make decisions 'more than usual' or 'as usual' the item was scored 0, whereas if the response was 'less than usual' or 'much less than usual' the item was scored 1. In this way, each subject obtained a score ranging from 0 to 12. In a recent study on 521 patients with skin diseases, where the Structured Clinical Interview for DSM-IV Axis I Disorders (SCID-I) was used as criterion standard to assess the performance of the GHQ-12, the best balance between sensitivity (68%) and specificity (64%) was found at the GHQ-12 cut-off score of 3/4 (20). Hence, we used this threshold to identify probable cases of mental disorders.

The χ^2 test (with Yates' correction for 2×2 tables) or Fisher's exact test were used, as appropriate, to analyse differences among groups in categorical variables, whereas multiple logistic regression analysis was used to identify patient factors associated with incorrect classification of patients by dermatologists with regard to the presence of psychiatric morbidity, defined as the presence of a depressive or anxiety disorder according to the PHQ. The PHQ was selected as criterion standard because of its high specificity and because it provides psychiatric diagnoses according to established criteria. Two separate analyses were performed, the first on patients who did not receive a PHQ diagnosis, and the second on patients who received a PHQ diagnosis. In these analyses, the dependent variable was correctness of classification by dermatologists, whereas gender, age, marital status, educational level, clinical severity of skin disease and localization of lesions on exposed body parts were entered as independent variables. All analyses were performed with the statistical package SPSS, version 8.0 for Windows (21).

RESULTS

Patient characteristics

A total of 317 outpatients aged 18 years or older visited the dermatologists involved in the study on the predetermined days and were given the research questionnaire. Although none of these patients explicitly declined to take part in the study, four (1.3%) returned a blank questionnaire and nine (2.8%) did not answer the PHQ. We also excluded another 12 patients (3.8%) who answered the PHQ incompletely and provided inadequate data to identify a PHQ diagnosis or to rule out the presence of a PHQ diagnosis. Another 15 patients were not rated by the dermatologists. The analysis was thus carried out on a total of 277 patients (87.4% of all patients contacted), whose sociodemographic and clinical characteristics are summarized in Table I. Of these patients, 270 (98%) completed the GHQ-12.

A comparison of patients included in the study and patients who returned incomplete questionnaires or were not rated by dermatologists showed no significant differences regarding gender, age, marital status, educational level and severity of the skin condition. Each dermatologist contributed almost equally to the total sample of patients: two dermatologists assessed 72 patients, the third 67 patients and the fourth 66 patients.

Prevalence of psychiatric morbidity

A total of 39 patients (14.1%) received one or more PHQ diagnoses. The proportion of patients with each mental disorder studied is reported in Table II. Depressive disorders were particularly frequent among

Table I. *Sociodemographic and clinical characteristics of the sample (n=277)*

Variables	n	%
Age range (years)		
<30	129	46.6
30–39	63	22.7
40–49	39	14.1
50–59	23	8.3
≥60	23	8.3
Gender		
Male	117	42.2
Female	160	57.8
Marital status		
Unmarried	152	54.9
Living with a partner	11	4.0
Married	94	33.9
Separated or divorced	11	4.0
Widower or widow	3	1.1
Missing information	6	2.2
Education		
Primary school	11	4.0
Junior high school	46	16.6
Senior high school	169	61.0
University	45	16.2
Missing information	6	2.2
Clinical severity		
Very mild	128	46.2
Mild	108	39.0
Moderate	38	13.7
Severe	1	0.4
Missing information	2	0.7
Diagnosis		
Acne	38	13.7
Alopecia androgenetica	10	3.6
Alopecia areata	1	0.4
Alopecia, other forms	4	1.4
Seborrhoeic keratosis	8	2.9
Contact dermatitis	3	1.1
Atopic dermatitis	3	1.1
Seborrhoeic dermatitis	18	6.5
Other forms of dermatitis	28	10.1
Changes in pigmentation	5	1.8
Bacterial infections	8	2.9
Warts and other viral infections	20	7.2
Fungal infections	10	3.6
Benign skin neoplasms	25	9.0
Naevi	32	11.6
Urticaria	6	2.2
Pruritus	4	1.4
Psoriasis	18	6.5
Malignant skin tumours	8	2.9
Parasitosis	7	2.5
Insect bites	2	0.7
Miscellaneous	19	6.9

Table II. *Proportion of patients with depressive or anxiety disorders as detected by the Patient Health Questionnaire (PHQ)*

PHQ diagnosis	Cases (n)	Prevalence (%) (95% CI)
Any depressive disorder	27	9.7 (6.5–13.9)
Major depressive disorder	10	3.6 (1.7–6.5)
Other depressive disorder	17	6.1 (3.6–9.6)
Any anxiety disorder	25	9.2 (5.9–13.0)
Panic disorder	18	6.5 (3.9–10.1)
Other anxiety disorder	7	2.5 (1.0–5.1)
More than one disorder	13	4.7 (2.5–7.9)
Any depressive or anxiety disorder	39	14.1 (10.2–18.7)

most diagnostic groups consisted of only a few patients, and this severely limits the precision of these prevalence estimates and does not allow meaningful comparisons between groups.

Recognition of psychiatric morbidity by dermatologists

In the dermatologists' opinion, 82 patients (28.1%) did not suffer any psychological distress, 126 (43.2%) suffered a modest psychological distress but were free from psychiatric morbidity, 54 (18.5%) had a mental disorder of mild severity, 14 (4.8%) had a mental disorder of moderate severity and 1 (0.3%) had a severe mental disorder. Hence, they identified a total of 69 patients (23.6%) as having a mental disorder.

The agreement between the dermatologists and the PHQ is reported in Table III. Using the PHQ as criterion standard, the dermatologists' assessment sensitivity was 33%, while specificity was 76%. In this sample of outpatients, the positive predictive value was 19%, while the negative predictive value was 87%. Of the 26 patients with a PHQ diagnosis who were not identified by dermatologists as having psychiatric morbidity, 22 (85%) scored above the threshold on the GHQ-12. Of the 55 patients without a PHQ diagnosis who were rated by dermatologists as having psychiatric morbidity, 45 (82%) did not score above the threshold on the GHQ-12.

The dermatologists tended to recognize anxiety disorders better than depressive disorders. Seven cases (58%) of 12 with only an anxiety disorder were recognized as having psychiatric morbidity, as compared with only 3 of 14 patients (21%) with only a depressive disorder ($p=0.11$).

As regards specific psychiatric diagnoses, major depressive disorder, alone or in comorbidity, was recognized in only 3 cases out of 10 (30%), whereas panic disorder, alone or in comorbidity, was recognized in 8 cases out of 18 (44%).

Variables associated with correctness of psychiatric status classification by dermatologists

In multiple logistic regression analysis, we first included in the models all independent variables (gender, age,

patients with urticaria (33%), pruritus (25%), skin tumours (25%), warts (25%), bacterial infections (25%) and psoriasis (17%). Anxiety disorders were especially prevalent among patients with pruritus (25%), urticaria (17%), psoriasis (17%), bacterial infections (12%), skin tumours (12%), warts (12%) and naevi (12%). Unfortunately,

Table III. *Agreement between the dermatologists' evaluation of psychiatric morbidity and the results of the Patient Health Questionnaire (PHQ)*

Dermatologists' rating of mental health status	PHQ: presence or not of depressive or anxiety disorders	
	No	≥1
Psychiatric morbidity		
Absence	182	26
Presence	56	13

marital status, educational level, clinical severity of skin disease and localization of lesions on exposed body parts). However, localization of skin lesions and marital status were excluded from the final models because they did not contribute substantially in terms of percentage of explained variance and proportion of participants correctly classified. Among patients *without a* PHQ diagnosis, increasing clinical severity ($p = 0.02$), female gender ($p = 0.03$) and younger age ($p = 0.05$) were associated with incorrect classification by dermatologists. Among patients *with a* PHQ diagnosis, there was a trend ($p = 0.12$) towards an association between male gender and incorrect classification by dermatologists.

DISCUSSION

Mental disorders are frequent among dermatological patients. In this study, the prevalence of PHQ-diagnosed depressive or anxiety disorders was 14%. In inpatients, we recently found a prevalence of 20% and 15% for SCID-diagnosed depressive and anxiety disorders, respectively (20). Other studies also reported high prevalence estimates for mental disorders in dermatological patients (8–12).

The referral to a mental health professional might be beneficial (22). However, patients with undetected psychiatric morbidity cannot be referred, and this study confirmed that mental disorders often go unrecognized in dermatological patients. Compared with the London study (9), the Italian dermatologists' sensitivity was lower (33% vs 65%), although specificity was higher (76% vs 49%). In other non-psychiatric settings, similarly low sensitivity levels have been found. For instance, general practitioners' sensitivity was 51% and 43% for PHQ-diagnosed mood and anxiety disorders, respectively (2).

The low agreement between dermatologists' ratings of mental health status and the PHQ might partly be due to inaccuracy of the PHQ. Given that its sensitivity is only moderate, some patients with no PHQ diagnosis who were rated by dermatologists as having psychiatric morbidity might have had a disorder undetected by the PHQ. However, in most cases the PHQ results were corroborated by the GHQ-12.

Also, the false positive rate of the PHQ was probably not negligible in this study, because positive predictive value decreases with decreasing prevalence, and the prevalence of each psychiatric diagnosis was relatively low. Therefore, some patients with a PHQ diagnosis who were rated by dermatologists as not having psychiatric morbidity might actually have been free from mental disorders. However, in this instance the PHQ results were usually consistent with those of the GHQ-12.

In male patients, PHQ-diagnosed psychiatric morbidity tended to go unrecognized by dermatologists. An increased likelihood of detection of psychiatric morbidity in female patients has also been observed in general practitioners (23). Males are usually less emotionally expressive than females (24), and this might hamper the detection of emotional distress and might partly account for the lower recognition of psychiatric disturbance in male patients. While other studies in general practice (2) or hospital wards (3) reported that depression tended to be recognized more frequently than anxiety disorders, we found an opposite tendency.

In patients with no PHQ diagnoses, female gender, younger age and greater clinical severity were associated with incorrect identification by dermatologists as patients with psychiatric morbidity. This suggests that dermatologists refer to the clinical severity of skin disease in order to form their opinion about the presence of a mental disorder. A possible explanation, partly supported by a recent investigation (25), is that dermatologists conceive psychiatric morbidity mainly as a consequence of skin disease, and hence they underestimate the possibility that mental disorders might also be pre-existing, or unrelated to the skin disease.

This study has some limitations. First, only four dermatologists participated. Although they had many years of experience, caution should be applied in generalizing our findings. Second, we used a self-report instrument as criterion measure. Our study would have gained in strength with the use of a standardized and more laborious psychiatric interview. This limitation was reduced by the use of a second validated questionnaire, whose results corroborated the PHQ results. Although many items of the questionnaires are similar because they enquire about specific symptoms of depression and anxiety, the good agreement between them probably results more from the actual presence or absence of psychiatric morbidity than from similarity of the instruments, because their structure is quite different. While the GHQ-12 is a simple instrument where all items are completed and have equal weight in the score, the PHQ has a hierarchical structure with some screening items that are always completed and other items that are completed or not depending on the answers to the screening items.

As recently emphasized (26), the issue of psychiatric morbidity in dermatological patients should receive

more attention. Educational programmes for dermatologists might be implemented to increase their skills in diagnosing and managing mental disorders. The effectiveness of such programmes has been documented in general practitioners (27). Less ambitiously, educational programmes might aim at increasing dermatologists' awareness of mental health issues and promoting the use of validated psychiatric screening questionnaires. An emphasis on increased recognition alone is probably insufficient to improve patient outcomes substantially (2). More profound changes in the health system are needed, including the dissemination of quality improvement programmes (28) and the rational development of consultation–liaison services. Such changes might help dermatologists to include their patients' mental health needs with the many other competing demands made on their often limited time (29).

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