ORIGINAL ARTICLE

Anxiety and depressive disorders in an emergency department ward of a general hospital: a control study

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Objective: In this study anxiety and depressive disorders were evaluated in patients admitted to an emergency department (ED) or to a medical department (MD).
Methods: The General Health Questionnaire-30 (GHQ-30) was administered to screen all patients (n = 719) consecutively admitted to an ED (n = 556) and to MD (n = 163) in a 120 day period. All GHQ-30 positive (score>4) underwent the Mini International Neuropsychiatric Interview, a structured interview to diagnose mental disorders according to DSM-IV criteria.
Results: Subjects positive to GHQ-30 were 264 (47%) in ED and 88 (54%) in MD. A mental disorder was diagnosed in 233 ED patients (42%) and in 77 MD patients (47%) (p = 0.70). The most frequent disorders were anxiety disorders in ED patients (18.1%) and depressive disorders in MD patients (21%) (p = 0.04).
Conclusions: Anxious patients more frequently seek attention at ED, whereas patients with depressive disorders are more often observed in medical units. The improvement of quality of care, the waste of healthcare resources through unnecessary medical care, and the well known efficacy of appropriate treatments in patients with anxiety and depressive disorders make the diagnosis of these patients particularly important.

In a general hospital, patients with psychiatric disorders are commonly found[1–6] with a prevalence varying from 30% to 60%.[1 7–9] Previous studies seem to suggest that anxiety disorders are expected to be frequent in emergency departments (ED) and depressive disorders in medical departments (MD). However, these studies evaluated only the prevalence of panic disorder in ED[10–17] and major depression in MD,[1 18–22] whereas none of them have compared the rate of anxiety and depressive disorders in ED and MD. Therefore, to verify whether anxiety and depressive disorders are differently distributed in ED and in MD, we compared the psychiatric morbidity in patients admitted to ED and to MD. Such information may help to recognise psychiatric disorders in a general hospital, to improve quality of care, and to reduce the cost of the treatment, avoiding unnecessary medical treatments.

METHODS

The study was approved by the ethics committee of the Parma University Hospital.

Sample

The patients included in the study were selected from all subjects who had been consecutively admitted to the ED and MD wards of the General Hospital of Parma, Italy, during a 120 days period (May to September 1996) if: (1) their age was between 18 and 65 years; (2) they had completed the diagnostic interview and the psychopathological evaluations; (3) their written informed consent had been obtained.

We excluded from the study: (1) subjects older than 65, because organic mental disorders, such as dementia and delirium are quite common in this population, but it is difficult to accurately measure their frequency. In fact, many patients with cognitive disorders are unable to give their informed consent or to complete questionnaires; (2) subjects who were too ill, either mentally of physically, to complete questionnaires; (3) subjects unable to speak Italian.

The General Hospital of Parma is a University Hospital with 1600 beds, serving a population of 400 000 people.

In Italy, ED wards can be considered as an acute medical ward where patients were admitted and stay for short periods of time (see below) for a diagnostic check up and treatment. Therefore, in Italy the difference between patients visited at the ED (who go home in few hours after physician consultation) and patients admitted to the ED ward (who are hospitalised for few days) is attributable to their physical condition. Moreover, two different medical and nursing staffs are involved in ED outpatient service and in ED inpatient ward.

Emergency patients with overt psychiatric symptoms were referred by the emergency physicians to the psychiatric ED for a consultation. After consultation, patients were admitted to the psychiatric ward or were given a psychiatric outpatient appointment, according to the severity of their illness. On the other hand, patients with alcohol or drug misuse or dependence were either admitted to other units because of their physical or mental conditions or sent to the Unit for the Treatment of Alcohol and Drug Dependence. Patients who could not be admitted to the unit (because of patient refusal or bed not available) were admitted to the ED ward for an acute detoxification treatment.

During 1996, 41 500 patients were visited at the ED, and 2745 patients were admitted to the ED ward for a mean period of 2.4 days (in the same year, the mean period of hospitalisation in medical wards was 10.3 days).

Assessment: Stage 1

GHQ-30[23] was administered to all subjects after collection of their basic sociodemographic data (age, sex, marital and family status, education, occupation).

GHQ-30 is a self administered questionnaire with 30 items evaluating general health, sleep and wakefulness, personal

Abbreviations: ED, emergency department; MD, medical department; GHQ-3, General Health Questionnaire-30; MINI, Mini International Neuropsychiatric Interview; DUSOI, Duke Severity of Illness

and social behaviours, subjective feelings (inadequacy, tension, anxiety, depression). The answers to each item consist in the following four point scale: ''not at all'', ''no more than usual'', ''rather more than usual'', ''much more than usual''. The method of scoring the questionnaire is to assign a score of zero to responses 1 and 2, and a score of unity to responses 3 and 4 (modified Likert scoring). A total score higher than 4 identifies subjects presenting a psychological distress (referred in the text as GHQ-30 positive patients).

In our previous study,[24] a GHQ-30 total score higher than 4 showed a sensitivity of 88.6%, a specificity of 87.5%, and a positive predictive value of 95.5% in detecting patients with DSM-IV[25] mental disorders in a GH.

Stage 2

All GHQ-30 positive patients underwent a clinical psychiatric examination, after giving their informed consent. During the clinical examination, the Italian version[26] of the Mini International Neuropsychiatric Interview,[27] was administered. This structured interview provides the possibility to establish in a short time (about 20 minutes) the diagnosis of Major Depression, Dysthymia, Mania and Hypomania, Panic Disorder, Agoraphobia, Social Phobia, Obsessive-Compulsive Disorder, Generalised Anxiety Disorder, Substance Abuse and Dependence, Psychotic Disorders, Anorexia and Bulimia Nervosa, Somatisation Disorder, Adjustment Disorders according to DSM-IV criteria.[25] Furthermore, the presence of Minor Depressive Disorder and Mixed Anxiety-Depressive Disorder was investigated using the research diagnostic criteria listed in the appendix B (''Criteria sets and axes provided for further study'') of the DSM-IV[25] (pages 720 and 724).

A psychiatrist (EB) was specifically trained to administer the MINI. The training consisted in the administration of the MINI to 10 patients affected by Major Depression, Dysthymia, Panic Disorder, Generalized Anxiety Disorder, Mixed Anxiety-Depressive Disorder. The interviews were audiotaped and reviewed by two psychiatrists involved in the preparation of the Italian version of the MINI. A satisfactory reliability ($\kappa = 0.76$) was obtained during the training. The psychiatric diagnoses of patients included in the study were also discussed with a senior psychiatrist (CM).

In all patients, the severity of the illnesses was evaluated by the physicians of the ED and MD wards using the Duke Severity of Illness (DUSOI)[28] and the diagnoses at discharge were registered using the hospital data base.

Statistical analysis

Comparisons between group were made with the χ^2 test for categorical variables and with one way analysis of variance and the two tailed Student's t test for continuous variables, as appropriate. Statistical analyses were performed with SPSS 10.0 release.

RESULTS

Sample

We excluded 167 subjects from the study: 103 patients were older than 65 years, 64 patients were unable to complete the GHQ-30 questionnaire because of their mental status (confusion) (n = 24), physical illness (n = 20), or foreign language (n = 20). Moreover, 16 patients refused to participate in the study. The rate and kind of the excluded subjects were similar in ED and MD.

The GHQ-30 was completed by 719 subjects: 556 were admitted to ED and 163 to MD. Table 1 shows the sociodemographic features of the sample.

The rate of GHQ-30 positives patients was similar in ED (47.4%) and in MD (53.9%) ($\chi^2 = 0.8$; df = 1; p = 0.77). GHQ-30 positive patients, compared with GHQ-30 negative patients, showed similar sociodemographic features in MD, but not in ED. In ED, GHQ-30 positives and negatives showed significant differences in sex distribution (female: GHQ-30 positives 59.7% versus GHQ-30 negatives 46.4%) ($\chi^2 = 9.9$; df = 1; p = 0.008) and in marital status (separated/divorced

Table 1 Sociodemographic characteristics of patients admitted to emergency department (ED) ward or to medical wards

	ED ward (n = 556)		Medical wards (n = 163)		Total (n = 719)	
	Number	%	Number	%	Number	%
Sex						
Female	297	53.4	78	47.9	375	52.2
Male	259	46.6	85	52.1	344	47.8
Age						
Mean (SD)	39.7 (13.7)		49.1 (12.8)		41.8 (14.1)	
Marital status						
Never married	198	35.6	28	17.7	226	31.7
Married	313	56.3	104	65.8	417	58.4
Separated/divorced	33	5.9	15	9.5	48	6.7
Widowed	12	2.2	11	7.0	23	3.2
Family status						
Living alone	55	9.9	26	16.9	81	11.4
Living with someone	501	90.1	128	83.1	629	88.6
Education						
Primary school	107	19.2	48	30.2	155	21.7
Secondary school	168	30.2	65	40.9	233	32.6
College graduated	240	43.2	35	22.0	275	38.5
University graduated	41	7.1	11	6.9	52	7.3
Occupation						
Unemployed	14	2.5	4	2.5	18	2.5
Student	40	7.2	7	4.4	47	6.6
Housewife	64	11.5	23	14.1	87	12.2
Employed	383	68.9	82	50.3	465	65.0
Retired	55	9.9	43	27.0	98	13.7

ED ward compared with medical ward: sex, $\chi^2 = 1.5$; df = 1; p = 0.21; age, $t = 7.7$; df = 717; p = <0.001; marital status, $\chi^2 = 25.4$; df = 3; p<0.001; family status, $\chi^2 = 5.8$; df = 1; p = 0.01; education, $\chi^2 = 25.5$; df = 3; p<0.001; occupation, $\chi^2 = 35.5$; df = 4; p<0.001.

Table 2 Mental disorders in GHQ-30 positive patients admitted to emergency department (ED) ward or to medical department (MD) wards

	ED		MD	
	Number	%	Number	%
	556	100	163	100
GHQ-30 positives	**264**	**47.4**	**88**	**53.9**
Mental Disorders	**233**	**41.9**	**77**	**47.2**
Anxiety Disorders	**101**	**18.1**	**19**	**11.6**
Generalised Anxiety Disorder	46	8.2	17	10.4
Panic Disorder	31	5.6	2	1.2
Mixed Anxiety-Depressive Disorder	15	2.7	–	–
Other Anxiety Disorders	9	1.6	–	–
Mood Disorders	**64**	**11.5**	**34**	**20.8**
Major Depression	32	5.7	18	11.0
Dysthymia	19	3.4	10	6.1
Minor Depressive Disorder	7	1.2	3	1.8
Other Mood Disorders	6	1.1	3	1.8
Adjustment Disorders	**49**	**8.8**	**18**	**11.0**
Other Disorders	**19**	**3.4**	**6**	**3.6**

ED ward compared with medical wards (mental disorders were grouped in five categories: no disorders, depressive, anxiety, adjustment and other disorders): $\chi^2 = 11.7$; df = 4; p = 0.02.

or widowed: GHQ-30 positives 11.4% versus GHQ-30 negatives 4.6%) ($\chi^2 = 10.7$; df = 3; p = 0.01).

Psychopathological evaluations

The MINI was administered to 352 GHQ-30 positive patients (264 ED patients and 88 MD patients). The rate of mental disorders was similar in ED patients (n = 233; 41.9%) and in MD patients (n = 77; 47.2%) ($\chi^2 = 0.07$; df = 1; p = 0.78).

ED and MD patients showed a significant difference in the rate of Anxiety Disorders (ED 20.3% versus MD 14.1%) and Depressive Disorders (ED 11.5% versus 20.8%) ($\chi^2 = 11.7$; df = 4; p = 0.02) (table 2). No sex difference in the distribution of mental disorders was observed in MD ($\chi^2 = 1.7$; df = 4; p = 0.78), whereas in ED female patients, compared with male patients, were more affected by depressive disorders (25.6% versus 8.6%) and anxiety disorders (35.2% versus 25.7%) ($\chi^2 = 27.5$; df = 4; p<0.001).

At discharge, physicians diagnosed a mental disorder as main diagnosis in 21 of all the ED patients (3.9%) and in seven of all the MD patients (4.2%) (table 3). Moreover, a mental disorder was secondarily diagnosed in four ED patients (0.7%) and in three MD patients (1.8%). In all of these patients the presence of a mental disorder was confirmed by the MINI.

Medical illnesses

Table 3 shows the diagnoses at discharge (ICD-9 diagnostic categories).

The most frequent diagnoses at discharge were ''injuries and adverse effects'' (26%) and ''signs, symptoms, and ill defined conditions'' (22%) in ED patients and ''diseases of circulatory system'' (30%), ''endocrine, nutritional, metabolic disease'' (almost all of them were diabetic) (13%), and ''neoplasm''(9%) in MD patients. This difference reached significance ($\chi^2 = 178.6$; df = 14; p<0.001) (table 3).

The medical disorders were more severe in MD patients (41.1 (SD14.7) than in ED patients (29.4 (14.3)) ($t = 8.8$; df = 717; p<0.001). In both ED and MD, no significant difference in the severity of the medical illness was observed between patients with or without mental disorders and among the categories of mental disorders.

Table 3 Diagnoses at discharge (ICD-9 categories) in patients admitted to ED or to MD wards

	Diagnoses at discharge			
	ED		MD	
ICD-9 diagnostic category	Number	%	Number	%
Injuries and adverse effects (800–999)	146	26.3	2	1.2
Signs, symptoms, and ill defined conditions (780–796)	127	22.8	14	8.5
Diseases of genitourinary system (580–629)	61	11.0	6	3.6
Diseases of circulatory system (390–459)	56	10.1	49	30.1
Diseases of digestive system (520–579)	46	8.3	14	8.5
Infective diseases (001–139)	26	4.7	6	3.6
Mental diseases (290–319)	23	4.1	7	4.2
Diseases of musculoskeletal system (710–739)	21	3.8	10	6.1
Disease of nervous system and sense organs (320–389)	19	3.4	3	1.8
Diseases of respiratory system (460–519)	16	2.9	7	4.2
Endocrine, nutritional, metabolic disease (240–279)	1	0.2	22	13.5
Neoplasm (140–239)	9	1.6	15	9.2
Diseases of skin and subcutaneous tissue (680–709)	4	0.7	3	1.8
Congenital anomalies (740–759)	1	0.2	–	–
Diseases of blood and blood forming organs (280–289)	–	–	5	3.1
All diagnostic categories	556	100.0	163	100

ED ward versus medical wards, $\chi^2 = 178.6$; df = 14; p<0.001.

DISCUSSION

This study investigated whether anxiety and depressive disorders differently affected patients admitted to ED or MD ward of a general hospital.

As expected, we observed a similar overall psychiatry morbidity in ED and MD wards, because in Italy the ED ward is an acute medical unit.

Nevertheless, anxiety disorders were more frequently diagnosed in the ED patients, whereas depressive disorders were more frequently observed in MD patients. This finding may be explained by the sociodemographic and medical characteristics of the patients admitted to MD or to ED: a higher number of MD patients were older, more frequently separated-divorced or widowed, living alone, housewife, or retired than ED patients. Moreover, MD patients showed a more severe medical disorder and a higher prevalence of cardiovascular diseases and cancer. All these features identified a population with a greater risk for depressive disorders.[20 29–31]

This study also confirms our previous finding[32] of a higher point prevalence of anxiety disorders (21%) than depressive disorders (10%) in ED patients.

The difference in psychiatric morbidity between MD and ED was attributable not only to the higher rate of panic disorder and mixed anxiety-depressive disorder in ED than in MD, but also to the higher rate of major depression and dysthymia observed in MD than in ED.

These data agree with previous studies,[11–13 16] reporting that patients affected by panic disorder frequently seek ED for consultation. Also patients with mixed anxious-depressive disorder are known to be quite common in outpatient medical settings.[25] Essential features of these disorders is dysphoric mood, lasting at least one month, and accompanied by concentration or memory difficulties, sleep disturbance, fatigue, irritability, hopelessness, low self esteem, or feelings of worthlessness.[25]

It is probable that the admission to ED ward for a diagnostic check up and treatment of mild somatic symptoms is requested for many anxious patients by ED physicians.

Differently from other anxiety disorders, generalised anxiety disorder showed a similar diagnostic rate in ED and MD, confirming that this disorder can also be frequently observed in patients with severe medical conditions.[29]

Even though depressive disorders were diagnosed more frequently in MD than in ED, severe depression is quite common in ED patients, because it represents the third more frequent mental disorder. This finding confirms that depressive disorders are associated with an increased use of ED.[24]

Our data show that 4% of the patients were discharged with a diagnosis of mental disorder in either ED or MD. The rate of psychiatric diagnoses was surprisingly low particularly in ED, even though there was a high prevalence (23%) of patients discharged with a first diagnosis comprised in the ''signs, symptoms, and ill defined conditions'' category (also named ''unexplained physical symptoms''), which are frequently attributed to a psychiatric disorder.[17 33 34]

The discrepancy between the frequency of psychiatric disorders diagnosed by the ED and MD medical staff and that found with the administration of the MINI could be explained by various reasons: (1) medical attention is particularly focused on life threatening illnesses or on medical diseases; (2) GH physicians may undergo medicolegal consequences if they fail to recognise medical conditions that mimic psychiatric disorders; (3) GH physicians might be insufficiently trained in psychiatry; (4) the GH medical staff might not have enough time for listening to psychological problems because of the large patient turnover; (5) GH physicians might consider depressive or anxious symptoms in severe medically ill patients as a normal psychological reaction.

Our data would suggest that training in psychiatric differential diagnosis would be important for GH physicians, and a strong collaboration between psychiatrists and GH physicians may lead to early detection and treatment of psychiatric disorders. Moreover, the recognition of psychiatric patients in GH can also be increased by the use of screening questionnaires such as GHQ-30 and Hospital Anxiety and Depression Scale, a self administered questionnaire with 14 items developed to evaluate anxiety and depression in patients with medical illness.[35]

Our study is limited by the choice of criteria in the assessment of the mental disorders in patients with medical diseases. The presence of symptoms, which may result from medical illnesses, might have increased the rate of false-positive cases of mental disorders, as suggested by Cavanaugh[36] and Bukberg *et al*.[37] However, the standardised interviews with specified criteria offer some advantages and are best suited for the diagnosis of mental disorders in the medically ill patients.[20] Therefore, it is unlikely that the use of the MINI increased the prevalence of psychiatric diagnoses in our study.

Moreover, our data are not representative of a common medical inpatient population because our sample included only patients younger than 65 years and thus, the rate of mood disorders in older patients could not be evaluated.

Finally, our findings do not reflect psychiatric morbidity in the ED itself, because this study investigated mental disorders only in an ED ward.

In conclusion, our data confirm that anxiety and depressive disorders are frequently found in patients attending medical services. The ED, as one of the most promptly available medical facility, is more often frequented by anxious patients, even though severely depressed patients are also quite commonly discovered in this setting. The improvement in quality of care, the waste of healthcare resources through unnecessary medical care, and the fact that patients with anxiety and depressive disorders respond well to appropriate treatment (somatic treatment combined with psychotherapeutic support) make the diagnosis of these patients particularly important. Educational efforts will make effective treatment available to more patients.

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