Original Articles

Clinical vs. structured interview on anxiety and affective disorders by primary care physicians. Understanding diagnostic discordance

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SUMMARY. **Aims** – To assess in a national sample the ability of GPs to detect psychiatric disorders using a clinical vs. a standardized interview and to characterize the patients that were falsely diagnosed with an anxiety or affective disorder. **Methods** – This is a national, cross-sectional, epidemiological survey, carried out by GPs on a random sample of their patients. The GPs were randomly divided into two groups. Apart from the routine clinical interview, the experimental group (group A) had to administer the Mini-International Neuropsychiatric Interview (MINI). **Results** – Data was collected by 143 GPs. 17.2% of all patients had a clinical diagnosis of an affective disorder, and 25.4% a clinical diagnosis of an anxiety disorder. In group A, the number of clinical diagnoses was about twice that of MINI diagnoses for affective disorders and one and a half times that for anxiety disorders. The majority of clinical diagnoses were represented by MINI subsyndromal cases (52.3%). Females showed a higher OR of being over-detected by GPs with anxiety disorders or of not being diagnosed with an affective disorder. Being divorced/separated/widowed increased the OR of over-detection of affective and anxiety disorders. The OR of over-detection of an affective or an anxiety disorder was higher for individuals with a moderate to poor quality of life. **Conclusions** – In the primary care a gap exists between clinical and standardized interviews in the detection of affective and anxiety disorders. Some experiential and social factors can increase this tendency. The use of a psycho.

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INTRODUCTION

A large number of surveys have documented that a significant proportion of primary care patients are affected by affective and/or anxiety disorders (Goldberg & Lecrubier, 1995; Lepine *et al.*, 1997; Rucci *et al.*, 2003; Ansseau *et al.*, 2004; Berardi *et al.*, 2005; Balestrieri *et al.*, 2004; 2005). The clinical relevance of such disorders in general practice is still being investigated in order to better assess their prevalence and management. The burden of these disorders will increase in the next few years, and it is estimated that depression will represent the second leading cause of disability by the year 2020 (Murray & Lopez, 1997).

Unresolved issues in this field are related to the relevance of misdetection of depression and anxiety by General Practitioners (GPs), and the impact of educational interventions aimed at improving the diagnostic ability of GPs (Ormel & Tiemens, 1995; Barbui & Tansella, 2006; Paykel, 2006). Both APA and WHO have developed inter-

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national classifications of mental disorders, specifically devoted to the primary care setting (American Psychiatric Association, 1995; World Health Organization, 1996). Moreover, great emphasis has been placed on the development of clinical guidelines, on the administration of screening questionnaires (Rizzo *et al.*, 2000) and on simple educational strategies (Stevens *et al.*, 1997; Gilbody *et al.*, 2001; 2002). Unfortunately, recent analyses have underlined the unsatisfactory impact of all these strategies in clinical practice, while integrated strategies involving combinations of clinician and patient education are more likely to be clinically and cost effective in the short term (Croudace *et al.*, 2003; Gilbody *et al.*, 2005).

Inadequate detection of psychiatric disorders can occur as a result of either underestimation or overestimation. Some studies have documented that GPs fail to detect from 10% to 50% of patients suffering from clinically relevant psychiatric disorders (Coyne *et al.*, 1995; Tiemens *et al.*, 1996). The rates of non-detection of depressed patients are high when somatic symptoms are present (Bridges & Goldberg, 1992) and when depression is of mild severity (Balestrieri *et al.*, 2004). On the other hand, other studies have focused attention on the proportion of patients who are labelled as depressed by GPs, but who do not satisfy international diagnostic criteria for major depressive episodes (Tiemens *et al.*, 1999; Bellantuono *et al.*, 2002; Berardi *et al.*, 2005).

The aims of this study were *a)* to assess the differences in the ability of GPs to detect psychiatric disorders using a clinical vs. a standardized evaluation in a large Italian sample of primary care patients; and *b)* to characterize the patients that were incorrectly diagnosed with an anxiety or affective disorder by GPs.

METHODS

Study design

This is a national, cross-sectional, epidemiological survey, carried out by GPs on a random sample of their patients, coordinated by the Unit of Environmental and Pulmonary Epidemiology of the CNR (National Research Council) and the Institute of Clinical Physiology in Pisa, in collaboration with the board of the EPIDEA (Epidemiology of Depression and Anxiety) research group and the FIMMG (Italian Federation of General Practitioners).

The survey was conducted in five geographical areas of Italy (North-East, North-West, Central, South and Islands) with a more or less equal number of inhabitants. Within each area, the FIMMG used the list of associated members, to pick a random sample of 204 GPs with a patient list size of at least 1000. Of these GPs, 143 (70.1%) agreed to participate in the study. Subsequently, the participants were divided randomly into two groups. The use of a structured diagnostic interview, the Mini-International Neuropsychiatric Interview (MINI), lifetime version, in Italian, adapted by Conti & Massimetti (2000), was the distinguishing feature of group A in contrast to group B. The GPs were asked to perform the routine clinical interview aimed at assigning a psychiatric diagnosis to the patients who were attending their practice. Soon after, they had to administer the MINI.

Group A participated in two training sessions on MINI conducted by some of the authors of this paper (MB, AB, GP). The training was structured in different phases, including theoretical and practical teaching on MINI using videotaped and simulated interviews. GPs in group B were only asked to carry out the clinical interview. Group B was selected in order to estimate the prevalence of affective and anxiety disorders by GPs naïve regarding specific psychiatric training.

Each GP was asked to assess at least 12 patients attending his/her practice, according to a random selection procedure provided by the SPSS software. Few patients of the total sample (12.1%) were considered to be not eligible for the assessment and were substituted by the following patient on the list.

Both male and female Italian citizens aged between 18 and 65 were considered to be eligible subjects. Those subjects deemed unable to collaborate in the survey, and those permanently hospitalized or living in nursery homes were excluded.

Each subject filled out a written consent form before participating in the study.

Investigation tools

Each subject completed the following self-administered questionnaires: the General Health Questionnaire (GHQ-12) (Goldberg, 1979) and the scale for evaluating quality of life (Euro QoL) (Euro-Qol group, 1990). The GHQ-12 is a well known screening instrument to detect psychiatric disorders in community and non-psychiatric clinical settings, such as primary care or general practice. The EuroQoL is a standardized instrument used as a measure of health outcome. Applicable to a wide range of health conditions and treatments, it provides a simple descriptive profile and a single index value for health status. It was originally designed to complement other instruments but is now increasingly used as a 'stand alone' measure.

Each GP administered the standardized CNR questionnaire for clinical and socio-demographic characteristics and cardio-respiratory diseases (Viegi *et al.*, 1999). The following cardio-respiratory diseases were considered: cough, phlegm, dyspnea, wheezing, attacks of shortness of breath with wheezing, chest tightness, asthma, chronic bronchitis, emphysema, other chronic respiratory diseases, cardiovascular disturbances, hyperlipidemia and hypertension.

The MINI is a short structured diagnostic interview, jointly developed by psychiatrists and clinicians in the United States and Europe, for DSM-IV and ICD-10 psychiatric disorders. It was designed to meet the need for a short but accurate, structured psychiatric interview for multicenter clinical trials and epidemiology studies (Sheehan *et al.*, 1998; Faravelli *et al.*, 2004).

Regarding the psychiatric diagnoses, the following were taken into account: mood disorders, anxiety disorders, alcoholism, and eating disorders, both lifetime and current. For the purpose of identifying subsyndromal disorders (SSD+), we assessed on MINI *a)* an affective SSD+ when a patient was positive on at least one of the following symptoms: A1, A2, A3, B1, B2, B3, D1, D2, D3, *b)* an anxiety SSD + when a patient was positive on at least one of the following symptoms: E1, E2, E3, E4, F1, F2, G1, G2, G3, G4, H1, H2, H3, H4, H5, H6, I1, I2, I3, I4, O1, O2, O3, *c)* another SSD + when a patient was positive on at least one of the following symptoms: J1, J2, J3, K1, K2, K3, M1, M2, M3, M4, N1, N2, N3, N4, N5, N7.

Statistical analyses

Statistical analyses were carried out using the Statistical Package for the Social Sciences (SPSS), version 10.0 for Windows. Comparisons between groups for categorical variables were performed with χ^2 test. The normality of continuous variables distributions was checked using the Kolmogorov test. Comparisons between groups for continuous variables were performed with t test or U-Mann Whitney test, depending on Kolmogorov test results. A logistic regression model was used first to evaluate the socio-demographic characteristics associated with psychiatric disorders, and then to evaluate the socio-demographic and clinical characteristics of the patients associated with false positive cases (disorders diagnosed by the GPs using the clinical interview but not with the MINI; FP) and false negative cases (cases according to MINI but not to GPs; FN). The p-level was set at 0.05.

RESULTS

Data was collected by 143 GPs, with the following national distribution: 17.5% from the North East, 16.8% from the North West, 24.5% from Central Italy, 24.4% from the South and 16.8% from the Islands. 897 subjects were interviewed by GPs in group A and 876 subjects by GPs in group B.

Patients in Group A and group B were the same in terms of gender (A and B: M/F=0.80; p=.962), mean age (A: 42.0±15.4; B: 43.2±31.0; p=.280), marital status (p=.301), years of education (%>13yrs: A: 18.2 ;B: 17.8; p=.962), GHQ mean score (A: 1.79±2.75; B: 1.96±2.79; p=.179) and working conditions (p=.320). Table I shows that 17.2% of all patients (No. 1773) were clinically diagnosed with a current affective disorder; 25.4% were diagnosed with a current anxiety disorder and a lower proportion (3.8%) with other diagnoses (alcohol abuse and eating disorder). Diagnoses of lifetime affective and anxiety disorders were about 30% higher. The rates of clinical diagnoses between the two groups of GPs did not differ, while a higher rate of current, but not lifetime, anxiety-affective comorbidity was reported in group B.

Table I. – *Distribution of diagnoses in groups A and B of GPs.*

		A	B		A vs. B
Clinical diagnoses		**Group A No. 897**	**Group B No. 876**	**TOTAL No. 1773**	**p**
Current					
	Affective	46 (16.3)	159 (18.2)	305 (17.2)	.296
	Anxiety	222 (24.7)	229 (26.1)	451 (25.4)	.501
	Others	30 (3.3)	38 (4.3)	68 (3.8)	.276
Lifetime					
	Affective	210 (23.4)	214 (24.4)	424 (23.9)	.615
	Anxiety	314 (35.0)	342 (39.0)	656 (37.0)	.078
	Others	58 (6.5)	67 (7.6)	125 (7.1)	.331
– Comorbidity affective and anxiety disorders. Current		85 (9.5)	115 (13.1)	200 (11.3)	.027
– Comorbidity affective and anxiety disorders. Lifetime		63 (18.2)	167 (19.1)	330 (18.6)	.271

Differences between clinical diagnoses and MINI

A few socio-demographic characteristics of the patients were associated with a high risk of a full-blown MINI psychiatric diagnoses. Male gender was a protective factor against affective disorders (OR 0.44; 95% IC 0.34-0.56), anxiety disorders (OR 0.56; 95% IC 0.45-0.69) and eating disorders (OR 0.36; 95% IC 0.23-0.56). Having a moderate (13 years: OR 0.20; 95% IC 0.07-0.55) or low level of education (< 13 years: OR 0.36; 95% IC 0.11-0.68) was a protective factor against alcohol abuse. Being a blue collar worker or a farmer was a protective factor against anxiety disorders (OR 0.69; 95% IC 0.50-0.95). On the other hand, being separated/divorced was associated with a higher risk of affective (OR 3.16; 95% IC 1.90-5.25), anxiety (OR 2,18; 95% IC 1.32-3.58) and eating disorders (OR 2.41; 95% IC 1.19-4.63). Finally, being single was also a risk factor for eating disorders (OR 1.70; 95% IC 1.08-2.50).

Table II shows that in group A, the number of clinical diagnoses was about twice that of MINI diagnoses for actual affective disorders (146 vs. 79) and one and a half times that for anxiety disorders (222 vs. 145). The overall *conspicuous morbidity*, that is, the psychiatric cases identified by GPs, was 44.4 (398 over 897 patients), while the *identification index*, that is, the psychiatric cases identified by GPs over the cases diagnosed with the MINI, was 1.6 (398/245).

In the 897 patients of group A, the estimate of probability that the cases were correctly diagnosed with an affective disorder by the GPs (positive predictive value, PPV) was 28.1, whereas the degree of confidence among GPs that negative results denote the absence of the disorders (negative predictive value, NPV) was 94.9. As far as anxiety disorders are concerned, the PPV was 47.3 and the NPV was 94.1, thus indicating that GPs are better able to identify these disorders. Finally, PPV and NPV for other disorders were 23.3 and 98.4, respectively.

Table III also shows that in our sample of GPs the majority of clinical diagnoses were represented by MINI subsyndromal cases (SSD +: 52.3%), i.e. cases positive for one or more of the symptoms elicited with MINI but not sufficient for the full-blown diagnosis. The clinical diagnoses of affective disorders by GPs included many more SSD + (66.4) than MINI full-blown diagnoses (28.1), while for anxiety disorders the two proportions were similar.

Table II. – *Accuracy of detection of psychiatric disorders in all patients of group A.*

		MINI full-blown diagnoses		
GPs clinical diagnoses		**Yes** **No. (%)**	**No** **No. (%)**	**Total** **No. 1773**
Affective disorders				
	Yes	41 (51.9)	105 (12.8)	146 (16.3)
	No	38 (48.1)	713 (87.2)	751 (83.7)
	TOT	79 (100)	818 (100)	897
Anxiety disorders				
	Yes	105 (72.4)	117 (15.6)	222 (24.7)
	No	40 (27.6)	635 (84.4)	675 (75.3)
	TOT	145 (100)	752 (100)	897
Other disorders				
	Yes	7 (33.3)	23 (2.6)	30 (3.3)
	No	4 (66.7)	853 (97.4)	867 (96.7)
	TOT	21 (100)	876 (100)	897

Affective disorders: PPV = 28.1 and NPV = 94.9
Anxiety disorders: PPV = 47.3 and NPV = 94.1
Other disorders: PPV = 23.3 and NPV = 98.4

Table III. – *Clinical and MINI diagnoses in patients of group A with a clinical diagnosis.*

	MINI **Full-blown diagnoses**	**MINI** **Sub-syndromal disorders (SSD+)**	**MINI** **No symptoms**	**TOTAL**	**p**
GPs clinical diagnoses					
Affective disorders	41 (28.1)	97 (66.4)	8 (5.5)	146 (100.0)	.000
Anxiety disorders	105 (47.3)	99 (44.6)	18 (8.1)	222 (100.0)	.000
Others disorders	7 (23.3)	12 (40.0)	11 (36.7)	30 (100.0)	.000
All diagnoses	153 (38.4)	208 (52.3)	37 (9.3)	398	

In order to understand some of the causes of false detection, we analyzed the socio-demographic and clinical characteristics of the patients who demonstrated different results in the comparison between the GPs clinical diagnoses and MINI full-blown diagnoses. Table IV shows the correlates (OR; 95% CI) which were different in FP and FN cases as compared to the rest of the sample. There was no difference in age, working conditions and years of education between groups and so these were not included in the table.

Table IV shows that, compared to males, females showed a higher OR of being over-detected by GPs with anxiety disorders or of not being diagnosed with an affective disorder. Worthy of note is the fact that when the GPs gender was excluded from the statistical model (not shown in the table), female patients also showed a higher risk of being over-detected with affective disorders (OR 0.51; 95%IC 0.32-0.82). Table IV also shows that being divorced/separated/widowed increased the OR of over-detection of affective and anxiety disorders. The OR of over-detection of an affective or an anxiety disorder was higher for individuals with a moderate to poor quality of life. On the other hand, higher GHQ scores increased the OR of missing an affective disorder diagnosis.

DISCUSSION

All the GPs who took part in the study were affiliates of a professional association (FIMMG) that is committed to improving the quality of management in primary care and organized the survey for this purpose. Thus, it is possible that our sample contained more GPs who are interested in improving their practice. On the other hand, it

Table IV. – *Correlates of false positive and false negative cases of affective and anxiety disorders in patients of group A.*

	False Positive vs. rest of the sample				**False Negative vs. rest of the sample**			
	Affective disorders		**Anxiety disorders**		**Affective disorders**		**Anxiety disorders**	
	OR	**95%CI**	**OR**	**95%CI**	**OR**	**95%CI**	**OR**	**95%CI**
Gender:								
Female	1.0		1.0		1.0		1.0	
Male	0.60	0.35-1.03	**0.51**	**0.31-0.85**	**0.26**	**0.10-0.66**	0.74	0.36-1.53
Age:								
<=36	1.0		1.0		1.0		1.0	
37-50	1.38	0.84-2.27	1.12	0.69-1.83	0.60	0.25-1.41	0.59	0.27-1.26
>50	0.69	0.38-1.26	0.98	0.58-1.66	0.54	0.21-1.39	0.48	0.20-1.14
Marital status:								
Married	1.0		1.0		1.0		1.0	
Single	1.07	0.58-1.99	0.98	0.55-1.76	1.39	0.56-3.44	1.05	0.47-2.37
Divorced/separated/widowed	**2.22**	**1.01-4.92**	**2.62**	**1.29-5.34**	2.25	0.74-6.84	1.60	0.51-4.96
Education								
>13 years	1.0		1.0		1.0		1.0	
=13 years	0.83	0.43-1.59	0.95	0.49-1.84	1.63	0.47-5.73	0.43	0.15-1.23
<13 years	0.65	0.35-1.18	0.83	0.45-1.53	1.36	0.42-4.43	0.60	0.24-1.48
Working status:								
Manager/white-collar	1.0	0.39-1.61	1.0		1.0		1.0	
Blue-collar	0.80	0.52-2.78	1.41	0.76-2.62	1.17	0.39-3.49	1.92	0.68-5.42
Self-employed worker	1.21	0.43-1.43	1.17	0.51-2.67	0.70	0.14-3.65	2.04	0.60-6.98
Looking for a job/other	0.78	0.32-0.82	0.98	0.56-1.72	0.68	0.26-1.80	0.94	0.37-2.42
GP gender								
Female	1.0		1.0		1.0		1.0	
Male	0.65	0.38-1.12	1.20	0.69-2.10	1.56	0.57-4.26	0.80	0.36-1.77
Cardio-respiratory comorbidity:								
No	1.0		1.0		1.0		1.0	
Yes	1.17	0.71-1.92	1.22	0.76-1.96	1.93	0.87-4.29	0.83	0.39-1.77
GHQ								
Low (<5)	1.0		1.0		1.0		1.0	
High (≥5)	1.39	0.74-2.60	1.12	0.59-2.10	**3.58**	**1.31-9.79**	1.57	0.58-4.27
EuroQol								
good (≤5)	1.0		1.0		1.0		1.0	
moderate (=6)	2.20	0.98-4.91	**3.34**	**1.73-6.45**	1.01	0.39-2.60	1.73	0.73-4.10
poor (≥7)	**6.87**	**3.16-14.91**	**3.45**	**1.71-6.96**	0.76	0.25-2.32	1.62	0.61-4.32

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should be noted that the FIMMG represents the majority of Italian GPs and its scientific committee selected GPs at random from among its affiliates. Therefore, there are no a priori reasons to assume that our sample was not representative of general practice in Italy.

We carried out a training session on MINI for group-A GPs with the aim of instructing the GPs on the characteristics and the administration of this instrument. At the end of the training session we checked the GPs' ability to assess MINI diagnoses, by ensuring that all diagnoses made by the GPs matched those made by the expert psychiatrist.

Even though we tried to give maximum information on psychiatric disorders – including the relationship between symptoms and diagnoses, between categorical and dimensional approaches and between somatic and psychological expressions of disease – we hypothesized that such brief training was insufficient to improve GPs routine clinical ability to detect psychiatric disorders. In fact, much has been written about the poor efficacy of brief training sessions on GPs diagnostic abilities and management strategies (Barbui & Tansella, 2006). There is a need for continuous education and collaboration between GPs and psychiatrists to see an improvement in the quality of their intervention (Rix *et al.*, 1999; Pfaff *et al.*, 2001; Scardovi *et al.*, 2003; Gask *et al.*, 2004).

In order to verify our hypothesis, we selected a second group of GPs, who were naïve regarding our training. It should be emphasized that at the start of the study no GP knew whether he/she was a member of group A or group B. Thus, the two groups of GPs were the same in terms of willingness to participate. Since no differences were evident in the diagnostic distribution between the two groups, we may be confident that the GPs who attended the training session on MINI performed as they would do without such training.

Among the GPs who attended the training session, the number of clinical diagnoses was more than one and a half times that of MINI diagnoses (identification index= 1.6), with a conspicuous morbidity of 44.4. This can be considered a good performance compared to other Italian studies (Balestrieri *et al.*, 2004; Berardi *et al.*, 2005).

The degree of accuracy in the estimation of the diagnosis by our GPs was far better for anxiety disorders (PPV = 47.3) than for affective disorders (PPV = 28.1). This may reflect a greater gap in the concept of what depression is between general and specialist physicians, than the concept of what an anxiety disorder is.

In primary care, physicians label clinical conditions that do not meet DSM or ICD definitional thresholds for axis I anxiety or mood disorders as anxiety and affective disorders (Baldwin & Thomas, 1997). These subsyndromal depression and anxiety disorders are clinically relevant and of public health importance because of a pervasive impairment of psychosocial function, a medical comorbidity and a high rate of service utilization (Ormel *et al.*, 1993; Roy-Byrne *et al.*, 1996; Judd *et al.*, 2002; Rucci *et al.*, 2003). This perception causes the GPs, when forced to use a yes/no approach to the diagnosis, to detect psychiatric disorders even when the clinical condition does not satisfy the international diagnostic criteria, even those adapted for the primary care setting (von Korff *et al.*, 1997). In our study, sub-threshold diagnoses were more frequent than full-blown diagnoses (52.3% vs. 38.4%). Specifically, 66.4% of subjects met criteria for affective sub-threshold diagnoses and 44.6% for sub-threshold anxiety disorders. These results are very similar to those obtained by Berardi *et al.* (2005), who found that about half of the patients labelled as depressed by GPs presented symptoms which did not reach the diagnostic threshold. Previous American and European studies comparing GPs and research diagnosis of DSM or ICD depression found rates of false positive cases ranging between 50 and 59% (Perez-Stable *et al.*, 1990; Klinkman *et al.*, 1998; Tiemens *et al.*, 1999).

Given these premises, we suggest that the use of MINI would improve the detection of psychiatric disorders in primary care. Since GPs do not usually have sufficient time to routinely administer the MINI, it would be feasible that, after receiving proper training, the GPs administer the MINI to patients whom they suspect suffer from a psychiatric disorder. We suggest this for two purposes: to exclude false positive cases and to better define the diagnostic profile.

In the literature, GPs have been reported to detect psychiatric distress more frequently among females, the widowed, the separated and the unemployed but disability and severity of symptoms are also predictive of recognition (Pini *et al.*, 1997). On the other hand, the presence of a physical illness can hinder the recognition of depression, since symptoms such as loss of energy, appetite disorders or sleep disturbances may suggest an organic disorder rather than depression (Freeling, 1993).

Our study shows that the likelihood for males to be incorrectly labelled with an anxiety disorder was higher than for females, while females carried a higher risk of not being diagnosed with an affective disorder. GPs gender exerted some influence in the detection of psychiatric disorders, in particular reducing the risk of female patients of being over-detected with affective disorders. The fact that the GPs diagnosed patients with a poor quality of life or with marriage failure with a psychiatric dis-

order may be understood by considering that the experiential difficulties of the patients may cause the GPs to label these situations as severe as a clear-cut psychiatric disorder.

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