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Anxiety disorders: a comparison of the ICD-9 and DSM-III-R classification systems

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ABSTRACT – Corresponding categories for anxiety disorders, as defined by the classification systems of the ICD-9 and the DSM-III-R, were compared in a selected sample of 114 outpatients. An unequivocal category-to-category correspondence could not be demonstrated for any diagnosis. Anxiety states in ICD-9 were closely related to generalized anxiety and panic disorder in DSM-III-R, and most patients diagnosed as phobic according to ICD-9 received one of the specific phobia diagnoses of DSM-III-R. To some degree, diagnostic discrepancies were caused by coexisting symptoms of phobia, panic attacks and/or generalized anxiety within patients. A new technique is introduced to adjust corresponding proportions according to base rate differences.

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A marked emphasis on diagnostic differentiation and subcategorization of anxiety disorders can be found in psychiatric classification in the last 3 decades. As a first step, phobic anxiety was separated from the unitary concept of anxiety neurosis. Later, agoraphobia, social phobia, and simple phobia were differentiated within the field of phobic disorders (1, 2), and anxiety neurosis was subdivided into a disorder predominantly characterized by panic attacks and a generalized anxiety syndrome (following Klein (3)).

Doubts about the diagnostic validity of the newly proposed categories have not altogether been ruled out (4–10), but a number of studies have demonstrated differences in treatment effects and other clinical variables between some of the groups (11–20). The increased number of distinct categories for anxiety disorders was first introduced into clinical diagnostics by the third edition of the *Diagnostic and statistical manual of mental disorders* (DSM-III) (21). This system and its recent revision (DSM-III-R) (22) are based on clearly outlined and descriptive inclusion and exclusion criteria.

An impact for new developments in the classification of anxiety disorders has also come from the concept of comorbidity (or multiple diagnoses), implying that an anxiety syndrome can be additionally diagnosed even in the presence of other (probably more severe) symptoms. This is in contrast to traditional diagnostic procedures (23), where anxiety syndromes are put on the lowest tier of a hierarchical model. They are thus often diagnostically subsumed under psychotic, depressive, and other neurotic disorders.

The traditional approach is represented by the currently used ninth revision of the International Classification of Diseases (ICD-9) (24). In this system, the classification of longstanding nonorganic and nonpsychotic anxiety disorders is restricted to the categories of anxiety states (or anxiety neurosis) and phobic state. The hierarchical principle is an important part of ICD-9. Multiple diagnoses can be used also in ICD-9, but

this is emphasized less clearly than in DSM-III/DSM-III-R.

The relationship between anxiety diagnoses in traditional and criteria-related classification systems has been analyzed in only a few polydiagnostic studies (25–27). Agreement between anxiety states (ICD) and panic disorder (DSM-III) ranged between 14% and 50%. For phobia diagnoses, an overlap between 50% and 100% was reported.

However, there are fundamental restrictions for the interpretation of these analyses since differences in sample base rates (proportion of subjects with the individual disorders) were not taken into account. For example, when a sample of subjects with the ICD-9 diagnosis of phobic state is evaluated, assume that only a small proportion of this sample was diagnosed as agoraphobic in DSM-III-R (compared with the proportions of other DSM-III-R phobic disorders). This result can simply be caused by a low base rate for agoraphobia (i.e. if only a few cases with agoraphobia were included in the study, but a greater number of subjects with other phobias). Thus, if only pure sample frequencies are analyzed, the true concordance may be under- or overestimated. Critical base rates were not published in the studies cited, and a posteriori adjustment can therefore not be established.

For these reasons, we intended to compare categories for anxiety disorders using raw as well as adjusted proportions for concordance. Although unequivocal correspondence between anxiety disorders of ICD-9 and DSM-III-R cannot be expected, similarities in underlying clinical concepts are pronounced enough as to hypothesize that: 1) panic disorder and generalized anxiety disorder (DSM-III-R) are more closely related to ICD-9 anxiety states (compared with phobia), and 2) agoraphobia, social phobia, and simple phobia (DSM-III-R) are more closely related to ICD-9 phobic state (compared with anxiety states). We further expected that criteria for specific DSM-III-R anxiety disorders are frequently met by patients with other pre- or coexisting mental disorders, and in many cases, the anxiety symptoms may not be significant enough for the clinician to give a corresponding ICD-9 diagnosis. A depressive syndrome could be dominating the clinical picture (leading, for example, to the principle diagnosis of neurotic depression), or a diagnostic category from other than neurotic disorders could be chosen as being most important (such as alcoholism).

Material and methods

Subjects were chosen from a larger sample of 500 adult outpatients who were consecutively examined in the Psychiatric Outpatient Department of the Max Planck Institute of Psychiatry in Munich. All patients were referred from a general hospital, psychiatrists in private practices, or general practioners. Diagnostic determinations and treatment proposals were requested. The patients presented with symptoms of various psychiatric disorders.

Diagnostic signs, symptoms, and criteria were assessed throughout by use of the Munich Diagnostic Checklist (MDCL), an extensive instrument we recently developed (28) to obtain data relevant to DSM-III-R diagnoses of affective, psychotic, organic, and substance-use disorders. The instrument represents a checklist clinically comparable to the the more standardized Structured Clinical Interview (SCID) (29). During clinical exploration, the MDCL was used as a semistructured guideline. The present status was determined as well as former symptoms (course characteristics). Thus, lifetime diagnoses were available.

Assessment was made by 5 clinicians (physicians and psychologists), all with experience in psychiatric evaluation and treatment. An intensive face-to-face interview was performed, lasting between 30 and 120 min. It was usually conducted in one session. The use of the MDCL was practiced before first application and supervised daily. Whenever further clarification was needed, specific patients were recontacted, or additional information was obtained from family members and/or other physicians and therapists.

Clinical ICD-9 diagnoses were made on the day of examination. At that time, any DSM-III-R diagnoses for the specific patient were unknown to the clinicians. These diagnoses were later generated by a computer program, based on an analysis of MDCL data.

Seventy-six subjects presenting with signs of an organic mental disorder or schizophrenia (and related syndromes) were excluded. The remaining total sample ($n = 424$) formed the basis for all analyses presented in this article. This sample is characterized by the following principal ICD-9 diagnoses: 7% affective psychoses; 24% neurotic disorders; 4% personality disorders; 36% alcohol or drug dependence; 11% eating disorders; 10% adjustment reaction; and 9% other diagnoses.

We selected a subsample of 114 subjects who received either at least one of the specific DSM-III-R anxiety diagnoses, or a clinical ICD-9 diagnosis of anxiety states or phobia (established with a good or high degree of certainty).

Diagnostic groups were formed independently for both classification systems. Of 104 patients with a DSM-III-R anxiety disorder, 20 were found to fulfill criteria for panic disorder with agoraphobia, 14 for panic disorder (without agoraphobia), 46 for agoraphobia (without history of panic attacks), 22 for simple phobia, 22 for social phobia, and 22 for generalized anxiety disorder. According to the descriptive concept inherent in DSM-III-R, subjects could receive more than one of the diagnoses mentioned. In our sample, 30 subjects simultaneously had 2, and 6 patients 3 anxiety diagnoses.

Anxiety states or phobia according to ICD-9 were diagnosed in 65 patients, 7 of them receiving both diagnoses simultaneously. When multiple diagnoses for neurotic disorders were considered, 39 subjects had anxiety states, and 33 a phobic state. However, these sample sizes diminished to 26 (anxiety states) and 24 (phobic state) when only the first (principal) diagnosis from the section of neurotic disorders (300.x) were taken into account.

The sociodemographic characteristics of the subsample with anxiety diagnoses at time of investigation were as follows: 1) mean age 35.2 years (range: 18 to 60); 2) 90 women and 24 men; 3) 43 married, 2 living (unmarried) with a spouse, 54 single, 12 divorced or separated, 3 widowed; 4) educational level: primary school with or without graduation, 38; college, 42; vocational schools, 18; university, 16.

Data analysis will be presented in terms of divergence and convergence. Patients with a specific diagnosis in one system might diverge (split up) into a number of different categories of the second system (emphasizing different aspects of the disorder in question). Conversely, distinct categories of one system could be accounted for by only one category of the second system. They would thus converge into this category, and differences between patients that were conceived to be of relevance in the first system are then neglected.

For an analysis of category A, splitting up into different categories $B_{1,2,\ldots,k}$ of the other system, a divergence rate is defined as the conditional probability of category B_j ($j = 1, 2\ldots, k$), given that the patient comes from the sample of category A (i.e. $P(B_j|A)$). Thus, a divergence rate gives the proportion of patients from category A to be classified, in the opposite system, under category B_j. When a single category A is analyzed and only one diagnosis for each subject is considered in the second system, divergence rates for the categories $B_{1,2,\ldots,k}$ add up to 1.00 (i.e. 100%).

An adjustment of divergence rates according to base rate differences for the categories $B_{1,2,\ldots,k}$ (frequencies within the sample) was calculated according to

$$div^*_j = \frac{div_j \,/\, P(B_j)}{\sum_j^k (div_j \,/\, P(B_j))}$$

where div_j is the observed divergence rate, and $P(B_j)$ the base rate of category B_j in the total sample. The adjusted rates $div^*_{1,2,\ldots,k}$ represent a distribution that could be expected if base rates for all B categories were identical in the sample. In analyses with multiple diagnoses, the percentage of additional diagnoses in the second system is kept constant in the adjustment procedure, and thus

$$div^*_j = \frac{(div_j \,/\, P(B_j)) \sum_j^k div_j}{\sum_j^k (div_j \,/\, P(B_j))}$$

In brief, the procedure of adjustment can be illustrated as follows. From our sample of

Table 1
Number of diagnostic combinations (multiple diagnoses) for DSM-III-R anxiety disorders for 36 patients

	1	2	3	4	5	6	Total*
1 Panic disorder with agoraphobia	-	0	4	0	3	7	14 (55.0)
2 Panic disorder without agoraphobia	0	-	3	0	0	1	4 (28.6)
3 Generalized anxiety disorder	4	3	-	6	2	2	17 (59.1)
4 Agoraphobia	0	0	6	-	9	8	23 (43.5)
5 Social phobia	3	0	2	9	-	3	17 (59.1)
6 Simple phobia	7	1	2	8	3	-	21 (77.3)

* total number of combinations for each diagnostic category (in parentheses: percentage of multiple anxiety diagnoses, in relation to the number of patients within each category).

patients with anxiety states (A), 36% received, in DSM-III-R, the diagnosis of generalized anxiety disorder (B_1), and 26% were diagnosed as agoraphobic (B_2). However, the total number of patients with generalized anxiety disorder included in the study was clearly below the number of patients with agoraphobia (5% vs. 11%). The correspondence between anxiety states and agoraphobia would thus be overestimated by the pure sample proportion. We obtained adjusted divergence rates of 14% (agoraphobia) and 41% (generalized anxiety disorder), giving a more appropriate estimate of correspondence. Complementary to divergence rates, we compted convergence rates giving the probability of category A, whenever the person comes from the subsample of one of the categories B_1, B_2, ... , or B_k (i.e. $P(A|B_j)$). Convergence rates express the prediction of A from B_j, whereas divergence rates refer to the prediction of B_j from A.

Measures of concordance between A and B_j are given by the κ statistic (30), taking chance agreement into account. We did not apply tests of significance, because hypotheses about the exact degree of congruence between A and each of the B_j categories cannot be derived.

Principal and additional ICD-9 diagnoses were considered only for the analysis of divergence from ICD-9. We neglected additional ICD-9 diagnoses for the evaluation of divergence from DSM-III-R categories. A comparison of deviation values is therefore established with or without strict application of hierarchical classification rules within ICD-9. The DSM-III-R principle of multiple diagnoses has been applied throughout our analyses.

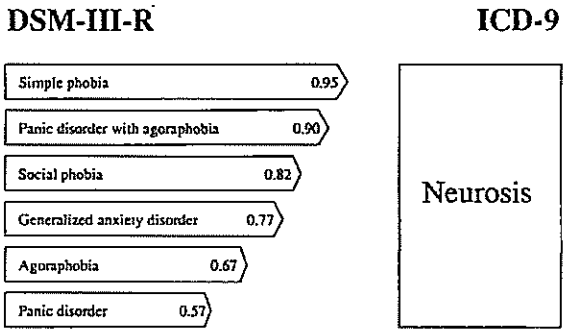

Fig. 1. Convergence of DSM-III-R anxiety diagnoses into the neurosis category of ICD-9.

Results

We will first give a general overview about relations found between different diagnostic categories, and then separately compare the individual categories of both classification systems.

Global analysis

According to the DSM-III-R concept of multiple diagnoses, anxiety disorders are not restricted to patients with "pure" or most prominent anxious symptoms. This explains the increased number of such diagnoses in DSM-III-R in our total sample of 424 patients (25% with at least one diagnosis for anxiety) compared with ICD-9 (15% with either anxiety states or phobia). From the subsample of 114 patients with anxiety disorders, 48% received an anxiety diagnosis in both systems. A quite comparable proportion was found for patients having an anxiety disorder exclusively in DSM-III-R (43%), whereas an ICD-9 diag-

Table 2
Comparison of ICD-9 diagnoses for anxiety states and phobic state with categories from the DSM-III-R system

	div	div*	con	perc	κ
A. DSM-III-R diagnoses for 39 patients with anxiety states					
Panic disorder with agoraphobia	0.31	0.38	0.60	91.8	0.37
Panic disorder	0.15	0.28	0.43	90.3	0.19
Generalized anxiety disorder	0.36	0.41	0.64	92.2	0.42
Agoraphobia	0.26	0.14	0.22	84.7	0.15
Social phobia	0.13	0.15	0.23	88.0	0.11
Simple phobia	0.21	0.23	0.36	89.4	0.21
Nonanxiety diagnoses	0.18	0.01	0.02	18.6	-0.15
Panic disorder (total)	0.46	0.35**	0.53	91.3	0.45
Agoraphobia (total)	0.56	0.27**	0.33	85.6	0.34
B. DSM-III-R diagnoses for 33 patients with phobic state					
Panic disorder with agoraphobia	0.18	0.26	0.30	90.3	0.18
Panic disorder	0.00	0.00	0.00	88.9	-0.05
Generalized anxiety disorder	0.09	0.12	0.14	88.4	0.05
Agoraphobia	0.55	0.34	0.39	89.9	0.40
Social phobia	0.12	0.16	0.18	88.9	0.09
Simple phobia	0.42	0.56	0.64	93.6	0.48
Nonanxiety diagnoses	0.09	0.01	0.01	18.2	-0.15
Panic disorder (total)	0.18	0.26**	0.18	87.0	0.11
Agoraphobia (total)	0.73	0.32**	0.36	88.0	0.43

div = divergence rate; con = convergence rate; div* = adjusted divergence rate (according to base rate[1]); perc = overall percentage agreement[2]; κ = kappa[2]; ** = mean weighted rate (from the categories of panic disorder with and without agoraphobia, and agoraphobia with and without panic disorder, respectively).
[1] base rates are (percentage): 4.7, panic disorder with agoraphobia; 3.3, panic disorder; 10.8, agoraphobia; 5.2, social phobia; 5.2, simple phobia; 5.2, generalized anxiety disorder; 75.5, nonanxiety diagnoses (only including patients with no diagnoses for an organic mental disorder, schizophrenia, or a schizophrenia-related disorder); 8.0, panic disorder (total); 15.6, agoraphobia (total).
[2] based on $n = 424$ (76 subjects with organic or schizophrenia-related disorders excluded).

nosis without a corresponding DSM-III-R diagnosis was given in only 9%.

Table 1 shows how often DSM-III-R anxiety categories were combined with each other (in 36 patients who were given multiple diagnoses for anxiety). Simple phobia coexisted for almost 80% with other manifestations of anxiety, in most cases with agoraphobia (with or without panic attacks). An impressive overlap was also found between agoraphobia and social phobia. Panic disorder without agoraphobia was associated with other anxiety disorders only in a few cases.

Anxiety and phobic states are considered in ICD-9 to be manifestations of a basic neurotic disorder. In contrast, DSM-III/DSM-III-R has abandoned the classical concept of neuroses, and

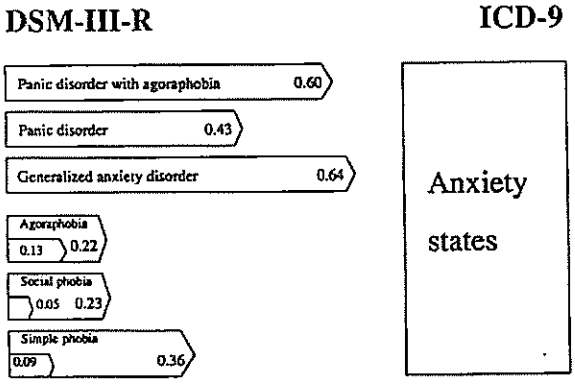

Fig. 2. Convergence of DSM-III-R anxiety diagnoses into anxiety states (ICD-9).

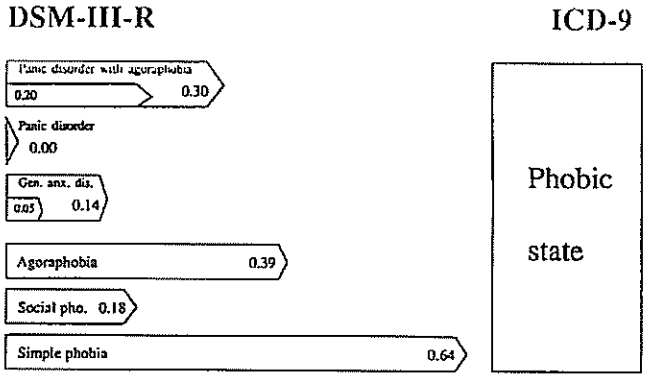

Fig. 3. Convergence of DSM-III-R anxiety diagnoses into phobic state (ICD-9).

grouping is solely based on the description of common clinical features. Consequences of these conceptual differences are demonstrated in Fig. 1.

For a group of 160 patients with neurotic disorders according to ICD-9 (300.0-300.9), convergence rates are displayed for each of the DSM-III-R anxiety categories (i.e. the probability of patients with a specific DSM-III-R diagnosis being classified as neurotic in ICD-9). All rates are less than one, showing that DSM-III-R anxiety disorders tend to additionally include other than neurotic disturbances. For example, no more than 57% of patients with a DSM-III-R panic disorder received a diagnosis for neurosis in ICD-9. The remaining patients were, in most cases, diagnosed as affective psychoses, personality and eating disorders, and adjustment reaction.

Anxiety states and phobia

For groups with the ICD-9 diagnoses of anxiety states and phobia, the relationship to the individual DSM-III-R anxiety categories is given in Table 2. We computed raw and adjusted divergence rates, convergence rates, κ, and overall percentage agreement (since low base rates attenuate κ). Both groups included patients with either primary or additional diagnoses of anxiety states or phobia. Since more than one DSM-III-R anxiety diagnosis could be made, divergence rates exceeded 100% (anxiety states: 160%; phobic state: 145%). Both ICD-9 anxiety disorders were almost perfectly associated with at least one specific anxiety disorder of DSM-III-R (Table 2). When divergence rates were adjusted, a probability of only 1% resulted for receiving another DSM-III-R diagnosis than for anxiety (see the row "nonanxiety diagnoses"). Patients were placed in this residual category only if they did not meet criteria for a specific DSM-III-R anxiety diagnosis.

Fig. 2 illustrates the convergence into ICD-9 anxiety states from corresponding categories of DSM-III-R. As expected, highest figures were found for panic disorder with agoraphobia and generalized anxiety disorder (almost two-thirds of these patients were classified as anxiety states in ICD-9), thus clearly ranging above the values for phobic disorders (proportion of about one-third or less).

However, a clearly decreased convergence rate was obtained for panic disorder without agoraphobia. Only 43% of these patients received a diagnosis of anxiety states in ICD-9. In our sample, a large number of subjects from the remaining 57% presented with predominantly depressive symptoms (leading to principal ICD-9 diagnoses of neurotic, endogenous, or reactive depression), or with eating or personality disorders as the most dominant clinical features. Yet, whenever agoraphobic fears coexisted with panic attacks, the clinical impression was much more the one of anxiety states.

Convergence rates for phobias (Fig. 2) were somewhat higher than expected, since a proportion of 22% to 36% of phobic patients were found to be classified as anxiety neurotic in ICD-9. Detailed analyses showed that this was partly due to the principle of multiple diagnoses. If secondary phobia diagnoses were eliminated from patients predominantly presenting with panic or generalized anxiety disorders, convergence rates for all phobia categories clearly diminished (5% to 13%; see hatched parts in Fig. 2).

Convergence into phobic state (ICD-9) is displayed in Fig. 3. A value of above 0.50 was obtained only for simple phobia. Sixty-four percent of the patients in this group were classified as phobic in ICD-9. Only about one-third of agoraphobic patients (with or without panic disorder) received the corresponding ICD-9 diagnosis, and a surprisingly low rate of 0.18 was found for social phobia. In these groups, there

Table 3
Comparison of DSM-III-R anxiety diagnoses with categories from the ICD-9 system

	div	div*	con	perc	κ
A. ICD-9 diagnoses for 20 patients with the diagnosis of panic disorder with agoraphobia					
Anxiety states	0.45	0.59	0.35	93.4	0.36
Phobic state	0.20	0.29	0.17	91.5	0.14
Neurotic depression	0.25	0.11	0.06	79.3	0.03
Other neuroses	0.00	0.00	0.00	91.0	-0.05
Other diagnoses	0.10	0.01	0.01	30.7	-0.08
B. ICD-9 diagnoses for 14 patients with panic disorder (without agoraphobia)					
Anxiety states	0.21	0.47	0.12	92.0	0.11
Phobic state	0.00	0.00	0.00	91.0	-0.04
Neurotic depression	0.29	0.21	0.05	80.2	0.03
Other neuroses	0.07	0.23	0.06	92.2	0.03
Other diagnoses	0.43	0.09	0.02	34.0	-0.02
C. ICD-9 diagnoses for 22 patients with generalized anxiety disorder					
Anxiety states	0.45	0.78	0.39	93.4	0.38
Phobic state	0.00	0.00	0.00	89.2	-0.06
Neurotic depression	0.32	0.18	0.09	79.9	0.06
Other neuroses	0.00	0.00	0.00	90.6	-0.05
Other diagnoses	0.23	0.04	0.02	31.6	-0.07
D. ICD-9 diagnoses for 46 patients with agoraphobia (without history of panic attacks)					
Anxiety states	0.13	0.20	0.23	85.9	0.10
Phobic state	0.30	0.51	0.58	90.1	0.35
Neurotic depression	0.17	0.09	0.10	74.5	-0.01
Other neuroses	0.07	0.15	0.16	86.3	0.04
Other diagnoses	0.33	0.05	0.05	30.7	-0.12
E. ICD-9 diagnoses for 22 patients with social phobia					
Anxiety states	0.23	0.37	0.19	91.0	0.16
Phobic state	0.09	0.16	0.08	90.1	0.04
Neurotic depression	0.41	0.22	0.12	80.7	0.11
Other neuroses	0.09	0.22	0.11	91.5	0.06
Other diagnoses	0.18	0.03	0.01	31.1	-0.08
F. ICD-9 diagnoses for 22 patients with simple phobia					
Anxiety states	0.18	0.21	0.15	90.6	0.12
Phobic state	0.50	0.62	0.46	94.3	0.45
Neurotic depression	0.22	0.09	0.06	78.8	0.02
Other neuroses	0.05	0.07	0.06	91.0	0.00
Other diagnoses	0.05	0.01	< 0.01	29.7	-0.10

div = divergence rate; con = convergence rate; div* = adjusted divergence rate (according to base rate[1]); perc = overall percentage agreement[2]; κ = kappa[2].

[1] Base rates are (percentage): 5.2, anxiety states; 4.8 phobic state; 15.6, depressive neurosis; 3.6, other neuroses; 55.6, other diagnoses (only including patients with no diagnoses for an organic mental disorder, schizophrenia, or a schizophrenia-related disorder). [2] Based on $n = 424$ (76 subjects with organic or schizophrenia-related disorders excluded).

was a marked tendency to find diagnoses for neuroses other than phobic type. Patients with social phobia often received ICD-9 diagnoses of anxiety states or neurotic depression.

No patient from the group of panic disorder (without agoraphobia) was diagnosed as phobic. Again, decreased values resulted for the non-phobic DSM-III-R anxiety diagnoses (panic dis-

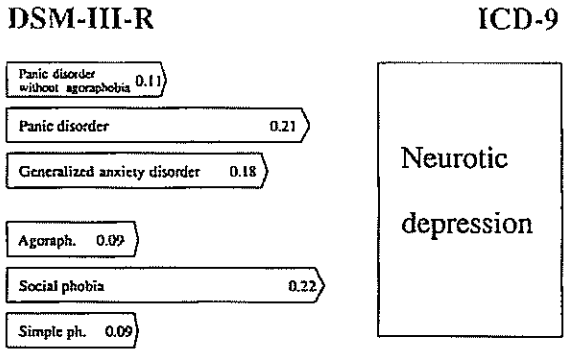

Fig. 4. Convergence of DSM-III-R diagnoses into neurotic depression (ICD-9).

order and generalized anxiety) when these diagnoses were not considered in addition to a specific phobic disorder (hatched parts).

Anxiety disorders in DSM-III-R

A more detailed analysis for the specific anxiety categories of DSM-III-R is provided in Table 3. For each diagnosis, interrelations are examined with the ICD-9 categories of anxiety states, phobia, neurotic depression, and with other neuroses and other nonorganic/nonpsychotic disorders. In this analysis, only the principal ICD-9 diagnosis for any neurotic disorder was considered.

When adjusted divergence rates are compared, results are similar to the findings presented in Figs. 2 and 3. Panic disorder and generalized anxiety disorder show the closest relationship (highest divergence rates) to the ICD-9 category of anxiety states, whereas agoraphobia and simple phobia are primarily related to ICD-9 phobic state.

However, no clear concordance with any of the ICD-9 diagnoses under investigation could be demonstrated for social phobia. No more than 16% of the subjects in this group were found to be classified as phobic in ICD-9, and probabilities of receiving diagnoses for anxiety states, neurotic depression, and other neurotic disorders were even higher (between 22% and 37%).

A relatively close relationship with neurotic depression not only existed for social phobia, but for all DSM-III-R anxiety categories. Fig. 4 summarizes adjusted divergence rates (i.e. probabilities of receiving the diagnosis of neurotic depression in ICD-9, given that a subject comes from one of the individual DSM-III-R categories). About one-fifth of patients with panic disorder, generalized anxiety disorder, and social phobia were classified as neurotic depressive in ICD-9. Rates of about 10% were obtained for the remaining 3 diagnoses.

Discussion

Anxiety disorders, as defined in the ICD-9 and DSM-III-R classification systems, can theoretically be regarded as based on comparable concepts. Panic disorder and general anxiety disorder represent distinct clinical pictures within the traditional framework of anxiety states, and subdivisions of phobic fears according to various external triggers can be summarized in the more general ICD-9 category of phobic state.

Empirically, however, congruence between related categories seems to be less definite. Though the data of our study showed some degree of correspondence for groups of associated categories between the systems, discrepancies occurred in a number of cases. For instance, if a patient was diagnosed as phobic in one system, he could receive diagnoses according to a syndrome of generalized anxiety or panic attacks within the other system.

Panic disorder with agoraphobia, as conceptualized by DSM-III-R, cannot neatly be related to either anxiety or phobic states within ICD-9, since the symptoms of these patients typically fit into both categories. However, there was a greater chance in our sample for patients with combined panic disorder and agoraphobia to be classified in ICD-9 as anxiety states compared with phobia.

Results for the category of social phobia (DSM-III-R) were found to be somewhat different from those for agoraphobia or simple phobia. Social phobia had a closer relationship with neurotic depression than with any ICD-9 anxiety disorder. Hence, the social phobic syndrome frequently seems to indicate deficits of assertion in depressed patients, and thus it may be less likely to represent a typical anxiety disorder of its own. Liebowitz et al. (17) have also stated that depression is commonly associated with social phobia.

A comparably marked tendency of diagnostic overlap between anxiety and depression was found for panic disorders without agoraphobia and generalized anxiety disorder. About 20% of patients in these categories were classified as anxiety neurotic in ICD-9. Generally, this is in accordance with a number of studies suggesting that there is probably no clear delineation between the clinically differentiated disorders of anxiety and depression (31, 32).

Further results for the individual DSM-III-R anxiety categories showed that panic disorder, if it occurs without agoraphobia, was least restricted to neurotic disorders. Instead, panic attacks may be associated with a variety of neurotic and nonneurotic disorders (33).

A fundamental incomparability can be stated for any single pairwise comparison of corresponding categories included in this study. DSM-III-R diagnoses are limited to a specific, clearly defined, and relatively homogeneous pattern of anxiety symptoms, but they also tend to include patients with disorders where anxiety is present but does not dominate the clinical picture (such as depression or substance dependence). ICD-9 diagnoses seem to be heterogeneous in a different way, since boundaries are less clear and patients with atypical symptoms of anxiety may receive these diagnoses as well. Thus, ICD-9 categories are conceptualized broader and more inclusive, but they are restricted to patients with most prominent anxiety syndromes. Lack of overlap between corresponding categories substantially reflects different basic principles of the systems under investigation (i.e. hierarchical classification or not).

Our results have implications for clinical studies evaluating groups of patients with specific anxiety disorders (for example, if differences of etiological factors, clinical variables, or treatment effects are to be determined). If subjects are sampled according to diagnoses and studies refer to different classification systems, results must be expected to be comparable only to a small degree.

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