

A dimensional view of today's classification of depressive and anxiety states

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Multiple diagnostic subgroups as a consequence of dimensional diagnostic criteria

The purpose of this paper is to elucidate the underlying dimensional structure of our current operational classification of the spectra of depressive and anxiety states and to question the view that subgroups within such spectra are independent "disorders". The number of diagnostic subgroups has grown steadily in recent decades, a development for which Van Praag (1995) coined the term 'nosologo-mania' and which is manifest in the inflation of diagnostic categories from 106 in DSM-I to 292 in DSM-III and to about 400 in DSM-IV (Angst, 1997 a,b). In parallel the number of categories in the International Classification of Diseases grew from 30 in ICD-9 to 106 in ICD-10. Although some of the new categories currently have the status of separate disorders, we are all aware that they may merely be artificial subgroups of one disorder. Dysthymic disorder (DSM-IV), for instance, has been shown to be a frequent antecedent or consequence of major depressive disorder; which would argue for considering them, together with double depression, as manifestations of one disorder (Angst, 1999a)?

The descriptive and operationalised approach, which we owe largely to Robins and Guze (1970) and to DSM-III, has proved highly useful, providing us with greater reliability and international comparability of psychiatric diagnoses. For DSM-IV, new concepts were developed on the basis of field studies in psychiatric practice, whereas ICD-10 drew on field studies in general practice, which were more representative. This is the reason why ICD-10 incorporated mild (minor) and brief depression, while they are still in the appendix of DSM-IV. Both diagnostic manuals could be still more useful if they took more account of the results of representative investigations of treated milder conditions.

Soon after the introduction of DSM-III our analyses based on the Zurich cohort study of a community sample describes important gaps in DSM-III's coverage of depression and anxiety states, gaps which remain in DSM-IV. These are easily identifiable if we examine treated cases from representative community samples and apply a dimensional approach to the assessment

and classification of depressive and anxiety states, especially in the domain of milder and brief manifestations, which form a continuum from pathological to normal (Angst and Dobler-Mikola, 1985; Angst and Wicki, 1992). In 1978 we began a prospective epidemiological study of depressive, neurotic and psychosomatic syndromes (Angst et al, 1984). For this study we developed a new interview (SPIKE) covering the whole range of psychiatric and psychosomatic syndromes; unlike the instruments used in most other modern epidemiological studies, it was not tailored primarily to an existing diagnostic manual but was flexible enough to meet most of the diagnostic concepts of DSM-III and DSM-III-R. The advantages of this approach are twofold: the interview is less dependent on continuously changing diagnostic definitions, and more important, it is designed to assess sub-diagnostic or sub-threshold phenomena enabling us to study the continuum from normal to pathological, on the assumption that all case definitions are questionable. Over the past 20 years this study has increasingly produced a *complementary dimensional approach to the current categorical classification* of psychiatric disorders. This paper sets out to illustrate this dimensional approach through two examples: depression and anxiety states, but it does not deal with the interrelationship between the two.

Methodology

The Zurich cohort study started in 1978 with the screening of 2201 males aged 19 and 2346 females aged 20. This sample was representative for the respective age groups in the canton of Zurich (Switzerland). From high and low scorers on the SCL-90-R (Derogatis, 1977) 292 males and 299 females were randomly selected for interview and for a prospective study. The interviews, which included questionnaires, were carried out when the subjects were 20/21, 22/23, 27/28, 29/30 and 34/35 years of age. Each interview covered the previous 12 months. The symptomatology was assessed by means of the SPIKE interview (Angst et al, 1984) conducted by trained clinical psychologists and psychiatrists in the subjects' own homes.

Over the years the SPIKE interview was adapted to the change in concepts in DSM-III-R and DSM-IV. Retrospectively the criteria for depression and anxiety could usually be met.

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TABLE 1
The depressive spectrum

	N		ratio f/m	prevalence rate
	males	females		
Double Depression (MDD + DYST ± RBD)	6	10	1.7	0.6
Combined Depression (MDD + RBD)	7	32	4.6	4.3
Major Depression (MDD)	27	49	1.8	10.1
Dysthymia (DYST)	8	3	0.4	1.2
Rec. Brief Depr. (RBD)	39	40	1.0	9.8
Minor Depression (MIND)	10	7	0.7	4.2

A diagnosis of depression was only given where there was subjective work or social impairment. Recurrent brief depression (RBD) was diagnosed according to the original definition of Angst, 1988 and Angst et al, 1990. The entire bipolar spectrum (including brief mild mania [hypomania] lasting only one to three days but otherwise meeting DSM-IV criteria for hypomania, Angst, 1998) was excluded from this analysis.

Within the anxiety states repeated panic attacks (DSM-IV), DSM-III generalised anxiety disorder (GAD) and recurrent brief anxiety (RBA) were diagnosed. RBA was defined as an anxiety state with the same symptoms as GAD but lasting less than two weeks (usually one to three days) and with repetitive rapid cycling (occurring at least monthly over one year) (Angst, Wicki, 1992).

Prevalence rates were computed cumulatively over all five interviews from the ages of 20 to 35, each of the interviews covering one year.

Hypotheses

Cross-sectionally or longitudinally some of the above diagnoses do co-occur, within the anxiety spectrum, for example, panic may be associated with GAD and with RBA and within the depressive spectrum, major depression with dysthymia or major depression with RBD. Such combinations are analysed in this paper through the hypothesis that combined diagnoses within the same spectrum (=homologous comorbidity) or association may represent more severe forms of a disorder.

This paper sets out to illustrate the hypothesis that the main criteria for the diagnoses of depression (number of symptoms, duration and frequency of episodes) are in fact dimensional. It further seeks to show that complex diagnoses of depression, for instance double depression or combined depression, have a similar dimensional structure and that they are more severe forms than uncomplicated pure dysthymia, pure major depression, pure recurrent brief depression or minor depression. Similarly, for anxiety states, combinations of repeated panic attacks with GAD (±RBA) and combinations of panic attacks with recurrent brief anxiety (RBA) are shown to be more severe forms of anxiety states than pure panic, pure GAD and pure RBA.

The following validators of homogeneity and severity were applied: a positive family history, a previous history of suicide attempts, work impairment, social impairment and treatment history.

The depressive spectrum

Table 1 shows, broken down by gender, the frequencies and prevalence rates of the depressive spectrum. Over the 15-year observation period 30.15% of the population received some kind of diagnosis of depression with work or social impairment; all bipolar subjects were excluded. Most prevalent were pure major depression (10.1%) and recurrent brief depression (9.8%), with the rarest diagnosis being double depression (0.6%). Minor depression was observed in only 4.2% of subjects, because a further 6% manifesting this syndrome did not meet the impairment criterion and were therefore excluded.

The overall gender distribution (prevalence ratio females/males) was in favour of females (35.7% vs 24.46%; f: m = 1.5). Given the small numbers the analysis of subgroups was based on raw frequencies. There is a trend to a higher gender ratio among subgroups of major depression, combined depression (4.3), double depression (1.7) and major depression (1.8), whereas other pure forms of depression show ratios closer to 1.0.

All these diagnosis categories are built on the dimensional criteria: number of symptoms, duration and frequency. Along these underlying dimensions, as illustrated by Fig. 1 to 3, all the validators correlated with increasing severity, increasing 'number of symptoms', 'increasing duration' and increasing 'frequency of episodes over one year'. The gradient of increase is steepest for the 'number of symptoms' (Fig. 1) and is also impressive for the dimension 'frequency of episodes per year' (Fig. 3). It follows from these uni-dimensional findings that subjects who score high on two or three criterial dimensions, for instance high number of symptoms, high frequency and long duration, must be more severely affected than those scoring at the lower end of one or more dimensions.

This dimensional approach is also valid for the diagnostic subgroups of depression (Fig. 4). On the diagnostic spectrum double depression (MDD + dysthymia) is more severe than combined depression (MDD + RBD). Double depression also includes some cases of RBD (triple depression). Among the validators a positive family history of depression does not distinguish clearly between subcategories, but it does support the assumption of homogeneity. In contrast, double and combined depressives clearly have higher suicide attempt rates than major depressives, dysthymics and recurrent brief depressives. A similar trend is illustrated by the treatment

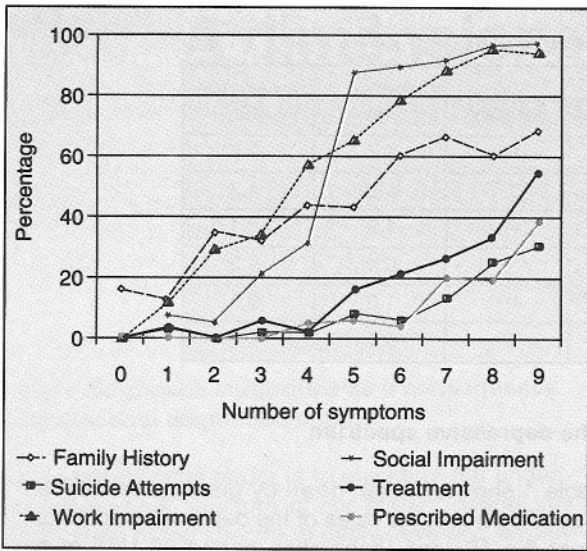


Figure 1. Number of depressive symptoms: validity.

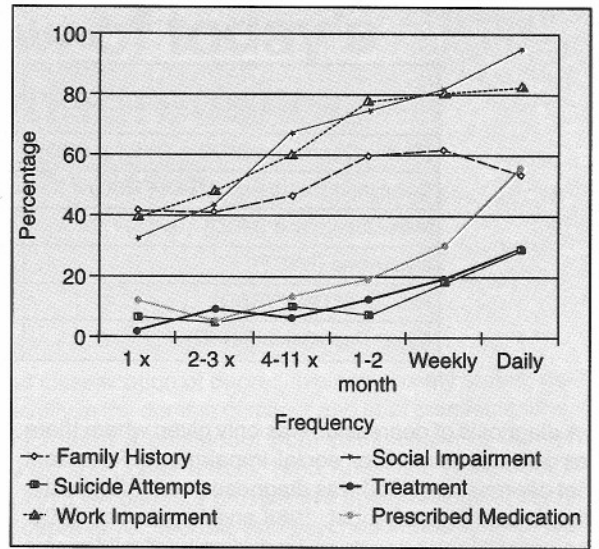


Figure 3. Frequency of depressive episodes: validity.

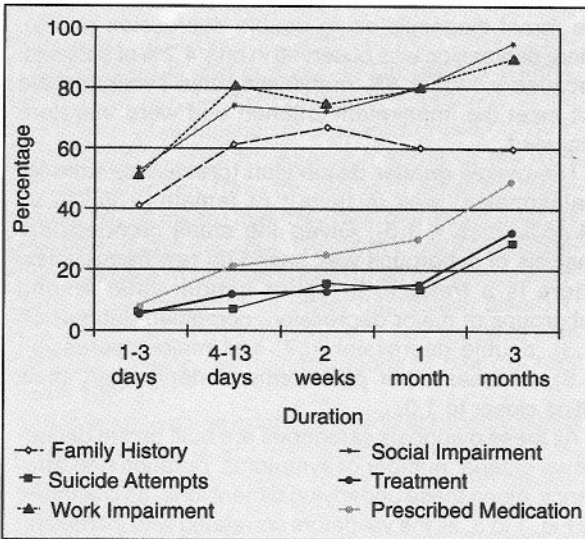


Figure 2. Duration of depressive episodes: validity

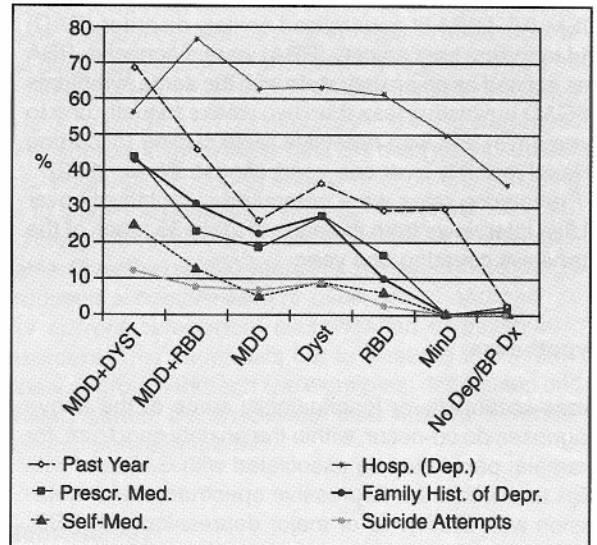


Figure 4. Depressive spectrum: treatment rates and clinical features.

rates: double depressives were far more frequently treated over the year preceding the interview than the other subcategories of depressives. The same is true for prescribed medication, self-medication and hospitalisation. It is of interest to note that the validators generally indicate that pure dysthymia is of greater clinical relevance than pure major depressive episodes, whereas complex cases of major depression form the most severe group.

It is clear from the comorbidity profiles of depressive subcategories that dysthymics and subjects suffering from dysthymia with major depression (double depressives) show stronger associations with anxiety disorders and phobias than pure major depressives or recurrent brief depressives (Fig. 5). No systematic trend was found in comorbidity with substance abuse across the depressive subgroups (Fig. 6).

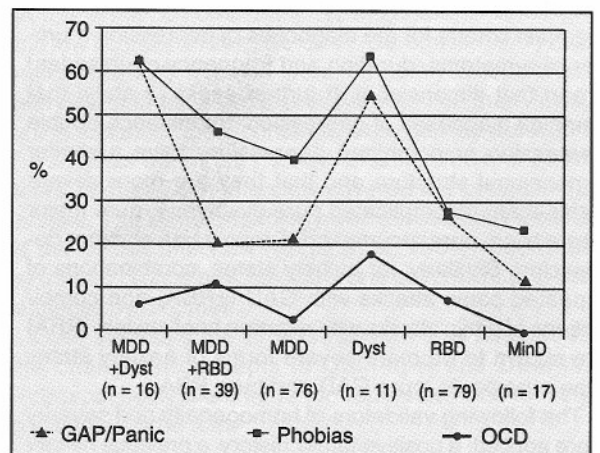


Figure 5. Depressive spectrum: comorbidity with anxiety disorders.

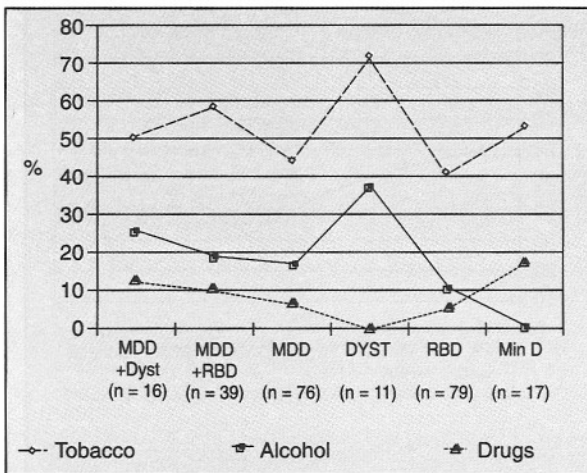


Figure 6. Depressive spectrum: comorbidity with substance abuse.

The spectrum of anxiety states

Table 2 shows, broken down by gender, the frequencies and prevalence rates of the five groups of anxiety states: panic plus GAD (plus RBA), panic plus RBA, pure panic, pure GAD, pure RBA and controls. The control group includes all subjects without anxiety states, normals and a large number of subjects with mood disorders. Homologous comorbidity is highly prevalent; it is remarkable how frequently panic attacks were associated with GAD in the general population (prevalence rate 2.7%) and with RBA (4.5%), whereas pure panic was found in only 3.3% of subjects. Pure GAD was frequent (7.1%), as was pure RBA (4.4%).

The gender ratio (f:m) shows clearly that complex panic (panic plus GAD or panic plus RBA) includes significantly more females than pure panic, pure GAD or RBA.

Figures 7 and 8 show the validity of this diagnostic classification, taking homologous associations into account. Work and social impairment were more prevalent among combined cases of panic with GAD or RBA, as were treatment for anxiety, treatment for depression and anxiety and prescribed medication.

Comorbidity was found less frequently in cases of pure panic than in combined cases of panic or of GAD (Fig. 9). An overlap with depression was present to the same extent in all diagnostic subgroups. Alcohol abuse was a frequent consequence of anxiety. It was highest among those suffering from panic plus GAD, followed by panic plus RBA and panic alone.

Table 2
The anxiety spectrum

	N		ratio f/m	prevalence rate
	males	females		
Panic + GAB ± RBA	9	20	2.2	2.7
Panic + RBA	19	46	2.4	4.5
Panic	12	22	1.8	3.3
GAD	20	20	1.0	7.1
Rec. Brief Anxiety (RBA)	21	21	1.0	4.4

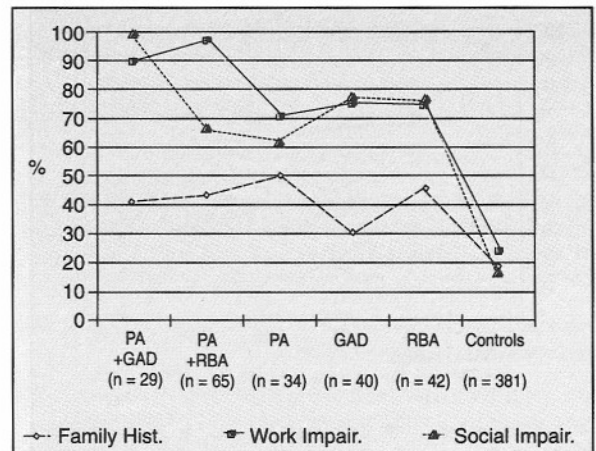


Figure 7. Anxiety spectrum: family history and social impairment

Figures 7 to 9 confirm the hypothesis that validity and severity decrease from combined to pure cases and that this dimensional approach to diagnostic categories is clinically meaningful.

Discussion

This paper has taken a uni-dimensional approach to depression and anxiety states, although the two spectra are also interrelated (Goldberg et al, 1987, Goldberg & Huxley, 1980). Previous presentations began to apply this approach to depression (Angst et al, 1995), bipolar disorders (Angst, 1996) and anxiety states (Angst, 1999a). The data of the present study clearly illustrate that current diagnostic criteria for depression are based on arbitrary cut-off points on the three dimensions: number of symptoms, length and frequency. These cut-offs are artificial, conventional and probably not even the best. In female twins Kendler and Gardner (1998) found "little empirical support for the DSM-IV requirements for 2 weeks' duration, five symptoms, or clinically significant impairment. Most functions appeared continuous".

Our findings are in line with their conclusion on the basis of other measures of validity (for instance treatment rates, suicidality) and comorbidity. We did not test the continuous distribution of impairment in this analysis (although work impairment was assessed by an analogue scale), because impairment was included in the definition of depression.

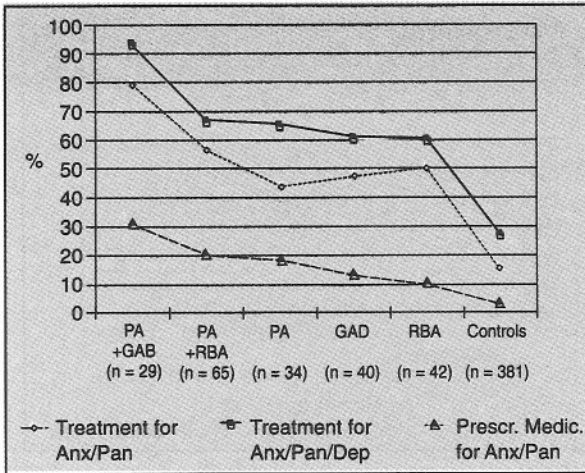


Figure 8. Anxiety spectrum: treatment.

In addition to these findings it should be recognised that recurrence is another important dimensional classifier: the more episodes, the more severe is the disorder. Recurrence may even be more important than episode duration for the definition of caseness and for the prediction of future course. In the case of anxiety states we do not have suitable data to carry out an analysis like that for depression. However, the analyses of mania reached similar conclusions (Angst, 1995a, 1995b). There is an increasing interest in milder psychiatric conditions. ICD-10 has partially taken the dimensional aspect of severity into account in its distinction between mild, moderate, severe and psychotic depression.

Even more important from the clinician's viewpoint is a *dimensional approach to diagnostic subgroups*. Our study clearly demonstrates that patients with more than one diagnosis of depression are most severely affected. Our study is too small to tell us much about the most severe end of the spectrum (mood-incongruent and mood-congruent psychotic depression), but it provides plentiful information on non-psychotic, severe, moderate and mild (minor) depression. To our surprise pure dysthymia seems to carry more implications (in terms of impairment, treatment, suicidality) than pure major depression. The most severe diagnostic combination is triple depression (MDD+DYST+RBD), which made up about half the total number of cases with double depression (MDD+DYST); in severity and clinical relevance these two categories are followed by combined depression (MDD+RBD), dysthymia, pure MDD and pure RBD. A more detailed analysis will be published elsewhere (Angst and Merikangas, 1999. Spectrum paper submitted).

It may seem surprising or even questionable to apply

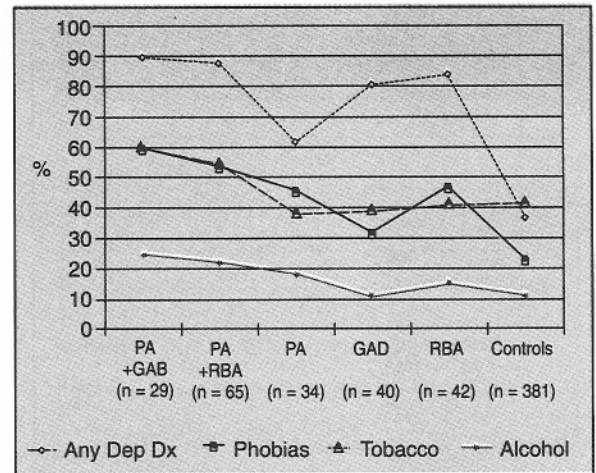


Figure 9. Anxiety spectrum: comorbidity.

a similar approach to anxiety states, where we distinguished between repeated panic, DSM-III GAD and recurrent brief anxiety (RBA). Longitudinally individual patients' diagnoses move between these categories; some even suffer cross-sectionally from two conditions, for instance, panic and RBA. Our approach yielded the interesting result that complex cases like "triple panic" (panic+GAD+RBA) represent a more severe form of panic than "double panic" (panic+GAD) and than pure panic.

These combinations of diagnoses, sometimes called comorbidity, represent cases of homologous comorbidity or pseudo-comorbidity within the same spectrum and should clearly be distinguished from true **heterologous comorbidity** or association, i.e. between different spectra (for instance association between panic and substance abuse). In view of the demonstrated clinical relevance of such complex cases awareness of this diagnostic complexity is certainly useful, because their prognosis may be poorer and they may be more difficult to treat than pure cases of panic disorder, GAD or MDD.

This paper has sought to provide data to elucidate the difficult problem of subthreshold diagnoses: we need to sharpen our awareness of the fact that there is no clearcut boundary between mental disorders and a state of psychological health and that sound empirical data are needed on milder conditions with good operational definitions and external validation (Zarin and Earles, 1993; Regier, 1998 and Spitzer, 1998). Data from the Zurich Study can contribute to this process. A future development will seek to extend our uni-dimensional approach into one which is multi-dimensional, more synthetic and capable of integrating multiple spectra of psychiatric disorders simultaneously (Angst, 1999b).

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