

# The Zurich Study

## III. Diagnosis of Depression

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**Summary.** A 23- to 24-year-old age group representative of the general population of the Canton of Zurich, was used to detect depression. The classifications obtained by means of the Feighner, RDC and DSM-III criteria are compared with our own concept, which differs in some aspects. A minimum of 2 weeks of depression is labeled as EDE (extensive depressive episode). Instead of the presence of a minimum number of depressive symptoms, social impairment at work is first examined as a case-defining criterion (EDE[WORK]); in a second step, a diagnostic threshold of three, and five, depressive symptoms for males and females respectively is adopted (EDE[SYM]). The consequences are presented relating to prevalence, incidence, sex distribution, overlap with other diagnostic concepts, severity, bipolarity and family history. An unequal sex distribution in depression is shown to be an artifact of definition.

Preference should go to a case-definition that could be specifically adapted to a given problem. On the whole, the DSM-III and EDE(WORK) criteria appear to be too broad. We will henceforth prefer the RDC and EDE(SYM) criteria, which both, however, necessitate further methodological and empirical study.

**Key words:** Epidemiology – Prevalence – Incidence – Depression – Sex ratio – Feighner, RDC and DSM-III diagnostics – EDE (extensive depressive episodes)

### 1. Introduction

Starting from the hypothesis of a *continuum* from normal sad mood to pathological depression, we first performed a categorization exclusively on the grounds of the *duration of depressive episodes*. This has been described elsewhere (Angst and Dobler-Mikola 1984b). The existence of such a continuum has been documented by symptomatology and other characteristics. Any attempt to distinguish between normal and pathological or between 'case' and 'noncase' on such a continuum obviously appears to be arbitrary. In fact, no generally valid definition of a psychiatric 'case' exists, as illustrated at the London symposium in 1981 (Copeland 1981). The best case-definition is a flexible one, and one that should depend on the problem(s) to be investigated.

Some current diagnostic sets of criteria for depression require a depressive mood change and the presence of a mini-

mum number of characteristic symptoms. This approach is adopted by epidemiology. It avoids the contamination of a given illness definition with social consequences. This permits the study of the social consequences of the illness independently of the definition (DSM-III [American Psychiatric Association, 1980], Catego [Wing et al. 1974]). A disadvantage of the DSM-III is its very broad case-definition.

Attempts have therefore been made to include the social consequences—apart from a mood change and a minimum number of symptoms—to define a depressive 'case' (e.g., Research Diagnostic Criteria [RDC] [Spitzer et al. 1978]). These criteria require (1) assessment of depressive mood change, (2) stipulation of a minimum duration of episode (e.g., 2 weeks), (3) presence of a minimum number of symptoms and (4) social consequences of the symptoms.

Questioning the assumption that a psychiatric 'case' could be defined based on symptoms alone, we decided to follow another sequence, in that we placed the social consequences (4) ahead of the number of symptoms (3). In such a way, we first reach a group with at least a 2-week depressive syndrome with social impairment at work (EDE[WORK] = extensive depressive episodes with work impairment). This group is further narrowed by the additional requirement of a minimum symptom number, to the so-called EDE(SYM), thus approaching the RDC. Table 1 displays the different diagnostic concepts. Since the social consequences are an important factor of our first step of case-defining, we wish to be more explicit about this detail. The exclusion criteria of the DSM-III apply to all diagnostic groupings listed in Table 1. We term depressive mood swings of less than 2 weeks duration 'Brief Depressive Episodes' (BDE), but will report on them in another publication.

The design, investigation methods, selection of samples and other methodological aspects have been presented in previous papers (Angst et al. 1984c; Angst and Dobler-Mikola 1984b).

### 2. Social Impairment as a Diagnostic Criterion

Some, though unequal, attention has recently been paid to social impairment as an additional criterion for diagnosing depression. The RDC, for instance, explicitly require professional treatment and/or social impairment for a diagnosis. Quotation: 'Sought or was referred for help from someone during the dysphoric period, took medication, or had impairment in functioning with family, at home, at school, at work, or socially'. Social impairment in this instance appears to be quite

**Table 1.** Definition of depression

Feighner	RDC	DSM-III	Zurich Study	
			EDE(SYM)	EDE(WORK)
Depressed mood	Depressed mood	Depressed mood	Depressed mood	Depressed mood
Duration of episode 4 weeks	Duration of episode 2 weeks	Duration of episode 2 weeks	Duration of episode 2 weeks	Duration of episode 2 weeks
5 of 8 symptoms	5 of 8 symptoms	4 of 8 symptoms	M : 3 of 8 symptoms F : 5 of 8 symptoms	
– appetite/weight (increase or loss) – insomnia or hypersomnia – psychomotor agitation or retardation – loss of interest		– loss of energy, fatigue – feelings of worthlessness and guilt – diminished ability to think or concentrate – thoughts of death, suicide		
	social consequences – treatment – self-medication – social impairment		occupational impairment – reduction of performance – secondary conflicts – absence from work – loss of job	

**Table 2.** Text assessing social impairment caused by depression

“Did your state have any effect upon your daily life performance or normal role functioning?

Were there certain things you were not/no more able to accomplish?

Did you feel in any way handicapped or did you experience difficulties

e.g. in your work?

- loss of performance
- conflicts
- absence from work
- loss of job

e.g. in your leisure time activities?

- yes
- no

e.g. in contacts with friends, acquaintances, parents or partner?

- yes
- no”

broadly defined, leaving the interpretation to the diagnostician. The interview DIS (developed in the USA) also applies these criteria of the RDC to the DSM-III and to the Renard (Feighner et al. 1972) diagnostics of depression.

Our method deviates from the DIS mainly on two points. (1) social impairment is not assessed for each symptom separately, but comprehensively in the frame of syndromes, and (2) social impairment is assessed in a more detailed way. The approach used in our interview of 1979 is described in the Appendix. The results obtained helped simplify the strategies for the reinterview of 1981. A synopsis is given in Table 2.

Just a partial aspect of the impact depression may have on every day life was considered for the EDE(WORK) case-definition: impairment in occupational functioning. Our analyses show that impairment in other roles, such as leisure time activities, contact with other people, is very frequent. To avoid too broad a case-definition, it is therefore omitted.

Restriction to occupational impairment is of course problematic. For instance, ‘work’ means quite a different thing to a housewife, a student or a working person. To our surprise, however, the investigation of reduction in performance did not prove to be very difficult. On the other hand, we were not

able to check the validity of the individual answers by direct observation of his/her behavior. Eventually, we must rely on a subjective estimate of impairment as perceived by the depressed persons themselves. For further analysis, we have divided occupational impairment into four points: reduction in efficiency, subsequent conflict at work, incapacity to work, loss of job. A rank order could be made up with the first three characteristics only, since, for instance, housewives cannot lose their jobs.

### 3. Number of Depressive Symptoms as a Diagnostic Criterion

Our analysis is limited to the eight depressive symptoms contained in the DSM-III, which are also the basis of the RDC and Feighner criteria. The frequency distribution of the eight symptoms is given in Table 3, depending on classification and subdivided by gender. The EDE category comprises all depressive episodes of at least 2 weeks duration which had manifested themselves in the course of 1 year. The frequency of the individual symptoms shows a marked sex difference. The median is three symptoms for males and five symptoms for females. The frequency also varies when different diagnostic criteria are applied. For example the category of probands having seven or eight symptoms is void in males.

The application of an equal cut-off point for males and females (e.g., presence of five of the eight symptoms) to assign a diagnosis will of course not change these sex differences. As we have reported it in another paper (Angst and Dobler-Mikola 1984a), men show fewer depressive symptoms for two reasons: they either perceive such symptoms to a lesser extent or underreport them, and they forget about them more readily than females. The latter fact becomes apparent especially when diagnosing earlier depressive states, e.g., in estimates of 1 year of lifetime prevalence rates. The first mentioned reason is remarkable in that men underreport depressive symptoms even in cases where they actually would be expected to be as depressed as women, e.g., stratified by social impairment. We therefore deem the application of different thresholds for diagnosing depression reasonable, i.e., following the median, three symptoms for males and five symptoms for females. The classification thus obtained will in this paper be referred to as EDE(SYM). It has been defined in Table 1.

**Table 3.** Occurrence of 8 depressive symptoms (listed as criterion B of DSM-III)

Classification	<i>n</i>	Males										<i>n</i>	Females										
		Number of symptoms											Number of symptoms										
		0	1	2	3	4	5	6	7	8	Median			0	1	2	3	4	5	6	7	8	Median
Feighner	3						2	1			5	17							8	5	2	2	6
RDC	6						3	3			5.5	22							9	4	5	4	6
DSM-III	11					4	4	3			5	34						10	10	5	5	4	5
EDE(SYM)	9				2	1	3	3			5	16							5	3	5	3	6.5
EDE(WORK)	13		1	3	2	1	3	3			4	28	1	2	1	2	6	5	3	5	3		5
EDE	24		2	7	4	4	4	3			3	44	2	2	2	4	10	10	5	5	4		5

**Table 4.** Depression observed over 3 months and 1 year

Classification	Male	Female	Total	Ratio M:F
<i>3 months</i>				
Feighner	3	6	9	1:2
RDC	5	11	16	1:2
DSM-III	7	15	22	1:2
EDE(SYM)	8	9	17	1:1
EDE(WORK)	12	14	26	1:1
<i>1 year</i>				
Feighner	3	17	20	1:6
RDC	6	22	28	1:4
DSM-III	11	34	45	1:3
EDE(SYM)	9	16	25	1:2
EDE(WORK)	13	28	41	1:2

#### 4. Overlap between Diagnostic Classifications

Using the raw values of our sample we will examine the diagnostic overlap between the following classifications: Feighner, RDC, DSM-III, EDE(SYM), EDE(WORK). Table 4 gives the frequency of depressive manifestations, obtained by each of these five diagnostic concepts, over 3 months and over 1 year.

Over a 3-month observation period, depression is diagnosed the most by the EDE(WORK) criteria (26), followed by the DSM-III (22), EDE(SYM) (17), RDC (16) and Feighner

(9). The sex ratios varied between 1:1 (EDE[SYM], EDE[WORK]), and 1:2 (Feighner, RDC, DSM-III). This points to a very significant methodological difference. The last three classifications produce the male/female ratio of 1:2 in point-prevalence studies. In contrast, our sample demonstrates a sex ratio of 1:1 for 2-week depression if no equal cut-off value for the presence of depressive symptoms is required. The EDE classification has the great advantage of including more male cases, while the number of diagnosed females remains approximately the same as with traditional diagnostic concepts.

The number of affected women is enhanced much more by diagnosing depressive episodes retrospectively over 1 year, shifting the male/female ratio even more in favor of the women. The insignificant increase of the men is below expectation and caused by a loss of information, probably due to poor remembering or a tendency to denial.

The overlap between the diagnostic categories displayed in Table 4 is given in Table 5 for 3 months and 1 year, subdivided by gender. Observation over 1 year again implicates the underrepresentation of the males. Depression diagnosed by DSM-III or EDE(WORK) criteria with their much broader definition shows of course the greatest overlap with the other groups. By definition, cases assessed with RDC or Feighner criteria are to a great extent subsets of the DSM-III group. Table 5 shows clearly that the EDE(WORK) criteria form a new proband group in which 10 cases do not overlap with the other diagnoses; these cases do not reach the threshold value of the minimum symptom number. On the other hand, 23 of the 25 cases meeting the EDE(SYM) criteria overlap with DSM-III and 22 with RDC criteria.

**Table 5.** Overlap between diagnoses

Configuration of overlap					Observation period					
Feighner	RDC	DSM-III	EDE(SYM)	EDE(WORK)	3 months			1 year		
					M	F	Total	M	F	Total
				+	4	4	8	4	6	10
			+	+	2	—	2	2	—	2
		+			1	2	3	4	4	8
		+		+	—	1	1	—	6	6
		+	+	+	1	—	1	1	—	1
	+	+			—	—	—	—	1	1
	+	+	+	+	2	6	8	3	6	9
+		+			—	1	1	—	2	2
+	+	+			—	2	2	—	5	5
+	+	+	+	+	3	3	6	3	10	13

**Table 6.** Prevalence rates (in percent)

Classification	Observation period								
	4 weeks			3 months			1 year		
	M	F	M + F	M	F	M + F	M	F	M + F
Feighner	0.3	2.6	1.5	0.3	2.7	1.5	0.3	7.6	4.2
RDC	0.3	2.8	1.6	1.6	3.1	2.4	1.8	8.1	5.1
DSM-III	0.4	3.1	1.8	1.9	3.4	2.7	2.3	11.2	7.0
EDE(SYM)	0.4	2.6	1.6	2.0	2.9	2.4	2.1	6.5	4.4
EDE(WORK)	2.9	3.8	3.3	4.6	4.3	4.5	4.7	10.7	7.9

**Table 7.** Incidence rates (percent) in 1981 (age: male 22, female 23)

Classification	M	F	M + F
Feighner	0.0	0.1	0.05
RDC	1.3	0.1	0.6
DSM-III	1.4	0.2	0.8
EDE(SYM)	1.2	0.0	0.5
EDE(WORK)	3.6	0.2	1.8

**Table 8.** Ratio of bipolar to unipolar depression

Classification	Bipolar	Unipolar	Ratio BP : UP
Feighner	3	17	1 : 5.7
RDC	5	23	1 : 4.6
DSM-III	6	39	1 : 6.5
EDE(SYM)	4	21	1 : 5.2
EDE(WORK)	5	36	1 : 7.2

## 5. Prevalence and Incidence Rates

The *prevalence rates* given in Table 6 are cumulative estimates over 4 weeks, 3 months and 1 year, divided into the various diagnostic categories and subdivided by gender. EDE(WORK) diagnoses are distributed nearly equally among males and females over 4 weeks and 3 months. All other categories demonstrate a very pronounced preponderance of women. The sex ratio is especially asymmetric for the diagnoses established by the Feighner criteria, i.e., men are highly underrepresented in the cases with numerous symptoms and long duration of episode. We regard the prevalence rates over 4 weeks as less representative than those over 3 months. It could well be that dating errors have permeated the data assessment of longer lasting depressive states. The last occurrence of a depressive episode was assessed in each case. On the whole, the well-known trend of higher female prevalence rates prevails. Only the 3-month prevalence rates based on EDE (SYM) and EDE(WORK) diagnostics call this trend into question.

Combined for the two sexes, the prevalence rates can be observed to increase in parallel with increasing time span. With the application of the more severe criteria (RDC, Feighner, EDE(SYM)), these rates are approximately 1.5% to 1.6% over 4 weeks, and between 4.2% and 5.1% over 1 year. In our opinion, it is an advantage of the EDE(SYM) that it considers more men. The EDE(WORK) criteria produce the highest prevalence rates; they are certainly only suitable for special investigations which take an interest in milder cases as well.

We have also attempted to estimate *incidence rates*, though the results ought to be considered with some caution. 'Incidence' here stands for the first manifestation of a given illness. Incidence rates therefore depend on a mute previous history and this again on the memory of the proband. There are a number of deciding factors in assuming that recollection of earlier mild depressive mood swings is dim, especially in males. This fact of course leads to higher incidence and lower prevalence rates in men.

In a prospective study, the milder episodes are registered with fewer memory errors. This correction must produce a reduction in the incidence rates. Incidence rates at two points of time can be obtained in our study by applying EDE(WORK) criteria; the rate is of 3.1% at the age of 20–21 years, and 1.8% at the age of 22–23 years. The latter age group shows an incidence rate for depression of 0.5% assessed by EDE(SYM), 0.6% by RDC, and 0.8% by DSM-III criteria. These rates probably come close to the real values. The results are presented in Table 7 and favor the males, as expected. The small number ought to be taken into account; extrapolation to the population based on so few cases is problematic. We therefore consider these incidence rates as rather provisional.

## 6. Bipolar Disorders

In our interview, the presence of hypomania was assessed by two items (analogous to the PSE). Following the subject 'depression' the proband was asked whether in the course of the past 12 months he/she had experienced the very opposite of depression, in that for a certain time he/she had been so happy, so excited or full of go that this had created a problem for him/her or that his/her family and friends had been worried about it. The second question was: have you been overactive, too talkative, did you travel excessively or spend too much money? If 'yes', the respective episodes were dated, and frequency and duration recorded.

Our criteria to define hypomania are more stringent than the RDC in that they require a minimum 2-week duration. In addition, only those hypomanic states occurring during the last 12 months (linked or independent of a depressive episode) were taken into account. In such a way, a case was considered to be bipolar if the subject has suffered at least once within the past 12 months from a minimum 2-week hypomanic state and a minimum 2-week depression. Such a disorder was found in 5 of the 456 probands. By extrapolation we obtain a *1-year prevalence* of  $0.75 \pm 0.20\%$  for *bipolar disorder*. The ratio of bipolar to unipolar disorder is 1 : 5 in the sample (Table 8).

Thus, bipolar disorder is rather frequent in our sample, which supports Clayton (1981) who assumed the ratio of 1:10 reported in the literature to be too high. The real share of manic-depressive illness may well be even higher, if we consider that we found 4 further 2-week hypomanic cases which were accompanied by only mild depressive mood changes that did not meet the diagnostic criteria.

### 7. Diagnostic Concepts of Depression with a View to its Social Consequences

Table 9 lists the social consequences (over 3 and 12 months) of depressive cases defined by different diagnostic systems. There are so few cases over 3 months that the more subtle differences cannot be assessed. A lengthening of the observation period to 12 months only means that more women are assessed. The proportional share of treated cases is naturally the highest where the most severe criteria—i.e., Feighner diagnostics—are applied, and the lowest with the broadest diagnostics, the DSM-III. It would appear that the DSM-III above all defines relatively mild depression among women as cases; this is illustrated by a rather low share of occupational impairment and treatment. On the whole, the diagnostic concepts taking social impairment into account have much in common. The results have however to be considered with some reticence, because of the small numbers.

### 8. Partial Validation of the Diagnostic Concepts

It was not a goal of the project to validate the existing diagnostic concepts. It might be very difficult to find external validation criteria which would really differentiate between them. The purpose of the following analysis was to establish shared and different factors by self-rating, positive family history and presence of bipolar disorder. We performed this analysis in two different ways: (1) Taking into account disorders that had manifested themselves in the course of the past 3 months, and (2) considering the cases observed over 1 year. Since no relevant differences were found, only the 1-year results have been tabulated.

*Subjective impairment* by depression, measured with a thermometrical scale (THERMO in mm) of 0–100, shows little difference between the diagnostic groups. The median is between 75 and 80 mm in all groups.

Of the *SCL-90* (Derogatis 1977), only the total score and depression scale medians are given. The total scores do not differ very much between the groups. From the lower depression scores (SCL) it would appear that with the criteria of DSM-III and EDE (WORK) milder cases are additionally assessed.

The proportional share of *bipolar illness* varies between 12% and 18%. It is again the lowest in DSM-III and EDE(WORK) diagnoses.

A *positive family history* was diagnosed as such if a proband indicated (1981) the occurrence of depression among parents or

**Table 9.** Illness behavior and social impairment over 3 months (1 year figures in brackets)

	Feighner		RDC		DSM-III		EDE(SYM)		EDE(WORK)	
	M	F	M	F	M	F	M	F	M	F
	3 [5]	6 [17]	5 [6]	11 [22]	7 [11]	15 [34]	8 [9]	9 [16]	12 [13]	14 [28]
Medical treatment	-	-	3 [8]	-	-	6 [11]	-	-	5 [8]	-
Self-medication	-	-	1 [3]	-	-	2 [4]	-	-	1 [2]	-
Discussing depression	2 [2]	6 [15]	4 [5]	10 [20]	6 [10]	14 [31]	7 [9]	8 [15]	11 [12]	12 [26]
— with parents	-	-	5 [12]	1 [1]	6 [13]	2 [5]	9 [19]	3 [3]	5 [10]	4 [4]
— with partner	-	-	6 [10]	1 [2]	9 [14]	3 [5]	10 [17]	2 [3]	7 [10]	5 [6]
— with close friends	1 [1]	6 [14]	3 [3]	9 [17]	5 [8]	13 [27]	6 [6]	7 [14]	8 [8]	11 [23]
— with acquaintances	1 [1]	-	1 [1]	-	1 [1]	1 [3]	1 [1]	-	1 [1]	-
Work impairment by depression	3 [3]	2 [8]	5 [5]	3 [9]	5 [5]	4 [12]	6 [6]	3 [9]	9 [9]	8 [16]
— loss of performance	-	-	-	3 [3]	-	3 [4]	1 [2]	3 [3]	1 [2]	3 [6]
— secondary conflicts	-	-	1 [2]	-	3 [4]	1 [1]	3 [4]	1 [1]	3 [4]	1 [1]
— absence from work	-	-	-	-	-	-	-	-	1 [1]	-
— loss of job	-	-	-	-	-	-	-	-	-	-
Other social impairment	3 [3]	4 [12]	3 [4]	9 [18]	5 [6]	11 [23]	5 [6]	8 [13]	7 [8]	12 [18]
— contact with others	2 [2]	4 [12]	4 [7]	10 [19]	5 [7]	13 [27]	5 [6]	9 [14]	9 [10]	13 [22]
— leisure time activities										

**Table 10.** 'Validity' of diagnostic concepts

	n (1 year)	Thermo (median)	SCL- total score (me- dian)	SCL- DEP- score (me- dian)	Mania %	Positive family history %	Mastery			Self-Esteem			Ratio M : F
							4th quar- tile %	eta <sup>2</sup>	P <	4th quar- tile %	eta <sup>2</sup>	P <	
Feighner	20	77	1.8	2.3	15	50	55	0.06	0.001	20	0.02	0.05	1:5.7
RDC	28	80	1.9	2.2	18	39	59	0.13	0.0001	38	0.07	0.0001	1:3.7
DSM-III	45	75	1.8	1.9	13	33	43	0.09	0.0001	29	0.03	0.01	1:3.1
EDE(SYM)	25	75	1.8	2.2	16	36	63	0.15	0.0001	41	0.06	0.001	1:2.7
EDE(WORK)	41	75	1.6	1.9	12	27	43	0.08	0.0001	26	0.01	NS	1:5.8

sibs. The positive answers much depend on the proband's gender: men give a positive answer in 8%–18%, women in 37%–53%. Accordingly, the differences in percentage given in Table 10 on positive family history are explained by the sex ratio of the respective diagnostic groups. Except for the EDE(SYM), the depressive groups differ significantly from the controls ( $35/202 = 17\%$ ).

*Mastery and Self-Esteem.* It would appear that depressive mood, primarily and secondarily, might be concomitant with lacking sociopsychological coping resources. These are measured with the scales 'mastery' and 'self-esteem' (Pearlin and Schooler 1978), for which Table 10 gives the percentage of the fourth quartiles, and  $\eta^2$  (variance analytical comparison between diagnoses and control subjects ( $n = 195$ )). Throughout all diagnostic groups, 'mastery' shows a clear connection with depression, the most distinctly for the RDC and EDE(SYM) diagnoses. Those depressive cases which have been defined by symptom number *and* social impairment are therefore found to be those associated the most with personal feelings of weakness. This link can be shown more clearly (in the EDE(SYM)) when social impairment is narrowed to occupational impairment only. The results of the 'self-esteem' scale are to a great extent in line with those of the 'mastery' scale. No significant association is found with our EDE(WORK) diagnostics. If only mastery and self-esteem are adopted as validation criteria, the RDC and EDE(SYM) diagnoses, which consider social impairment and symptomatology, are those producing the clearest association between these two scales and depression.

## 9. Discussion

Our study tackles the problem of diagnosing depression in an unconventional way. Thus, no case-definition was determined prior to the first interview. Only in the second interview phase did we include the Feighner, RDC and DSM-III criteria. Data analysis was performed progressively, gradually approaching the traditional diagnostic concepts. In a first step, we merely considered the length of a depressive episode (Angst and Dobler-Mikola 1984b). In a second step which is presented in this paper, we included social impairment and number of symptoms as classificational criteria.

Depressive episodes of 2 weeks have been defined as 'extensive depressive episodes with work impairment' = EDE(WORK) when they were accompanied by impairment in occupational functioning; EDE(SYM), an even more stringent case-definition, requires a minimum of three, and five, out of the eight DSM-III symptoms for males and females respectively. These two definitions are not meant to foster the Babylonian chaos in the polydiagnostics of psychiatric illness, but to help investigate the pros and cons of different case-definitions. The following aspects are of special interest:

1. Which case-definitions are broad and which are narrow?
2. What is the overlap between the definitions?
3. What is the sex ratio?
4. How far are prevalence and incidence rates comparable?
5. What percentage is bipolar illness?
6. How are the cases assessed, in the light of an analog-rating or self-reporting by means of the SCL-90?
7. How frequent is a positive family history?

*Breadth of Case-Definition.* The broadest diagnostic concepts are those of the DSM-III and EDE(WORK) criteria. Retrospectively over 1 year, these identify at least twice as many

cases as the Feighner criteria. In mid-position we find the RDC and EDE(SYM) diagnoses which are very similar quantitatively. The different diagnostic approaches each have their pros and cons. The stringent Feighner criteria select a group of probands who suffer from longer lasting episodes and who therefore possibly represent an interesting group for the study of chronicity; RDC and EDE(SYM) select similar cases which we regard as ascertained depressed cases. The broad definition by DSM-III and EDE(WORK) criteria includes many mild cases or those with few symptoms. How valid these 'cases' are is unclear. We consider these two diagnostic systems overinclusive with too many mild cases. Nonetheless, they might qualify for certain specific investigations.

*Overlap between Diagnostic Groups.* Within the concepts, close relationship is given by definition. The cases defined by the Feighner criteria are a subset of the RDC cases which in turn are a subset of the DSM-III cases. Analogically, EDE(SYM) cases are a subset of EDE(WORK) cases.

Though an approximately equal number of cases are defined by the DSM-III and the EDE(WORK) criteria, they largely differ qualitatively. The DSM-III criteria include a group of socially unimpaired or little impaired cases, and the EDE(WORK) criteria include cases with occupational impairment but with few symptoms. The overlap between RDC and EDE(SYM) cases is quite pronounced, especially so for the females, because the definitions merely differ in impairment of social role functioning. On the other hand, the males evidence a clear-cut difference. EDE(SYM) diagnostics assess more males because the number of required symptoms is only three of eight instead of five of eight as with the RDC.

*Sex ratio.* A prime question in research of depression is the sex ratio. On the whole, women are not only more frequently treated for depression, but also predominate in epidemiologic studies with a prevalence ratio of 2:1 vs males. Our analysis of the distribution of symptomatology, divided by gender, demonstrates that men generally indicate fewer symptoms and therefore more rarely reach the diagnostic threshold if an equal number of symptoms is required. On the other hand, more men are diagnosed as cases, with the sex ratio approximating 1:1, if social impairment in the occupational frame is considered to be relevant (e.g., by EDE(WORK) criteria), instead of frequency of symptoms. This ratio does not alter even if a different threshold for symptom number is postulated for a diagnosis, as we have adopted for the EDE(SYM) criteria (three of eight symptoms for males, five of eight symptoms for females). Which criterion should have priority in diagnostics, either social impairment or number of symptoms, must be clarified empirically by validation studies. In any event, our results point to the fact that the sex ratio is heavily dependent on case-definition and therefore cannot be taken as empirically ascertained. The current hypotheses trying to explain the high preponderance of depressive females ought therefore to be deferred until we understand the phenomenon itself as the data available cannot solve the problem. Further investigations including other age groups are needed to explore the true sex ratio. The important findings of Hagnell et al. (1982) suggest an alarming increase of depressive disorders over the last decades in both sexes, but a tenfold increase among men in their 20s and 30s. Such a development could equalize the sex ratio.

*Prevalence and Incidence Rates.* We have estimated the prevalence for a 4-week period, which nearly corresponds to point-

prevalence, for 3 months and 1 year. These prevalence rates are between 1.5% and 4.2% if assessed with Feighner diagnostics, between 1.6% and 5.1% with RDC, between 1.6% and 4.4% with EDE(SYM), between 1.8% and 7.0% with DSM-III, and between 3.3% and 7.9% with EDE(WORK) diagnostics. This confirms again that the RDC and EDE(SYM) criteria produce similar results, just as do the DSM-III and EDE(WORK) criteria. The rates are somewhat misleading, however, in that there are important differences in sex distribution. The United States criteria generally identify more women than men, while the EDE criteria produce a more balanced ratio.

We find an incidence of 5–6 per 1000 a year in an age group of 22- to 23-year-olds, though these findings are provisional. The most important source of error is probably the recollection of earlier episodes. The true incidence would therefore have to be corrected downwards. It would be of 1–2 per 1000 for females and between 1.2 and 1.4 per 1000 for males, which is probably due to the unreliable anamnestic indications by the men.

*Share of Bipolar Illness.* The proportion of bipolar compared to unipolar disorders of 1:5 found by our investigation, probably still understates the actual bipolar share, but appears to be approximating reality more than the results of other studies. Hypomanic states are often sensed less by the person concerned than by those around him/her. A study of the probands will therefore not do to produce valid results. Our method of exploring manic symptoms has meanwhile been revised in a new version of the SPIKE. A longer-lasting prospective observation of the probands could naturally only reduce the share of the unipolars in favor of the bipolars. We cannot yet say what the rate of change in polarity per year is.

*Severity of the Cases.* Considering the subjective impairment, most cases can be said to be plain depression. The analog-rating on a millimeter scale of subjective impairment is higher for the depressive syndromes than for any of the other psychic or psychosomatic syndromes (Binder and Angst 1981). If the SCL-90 depression scale is accepted as valid, it also clearly shows depressiveness. It is evident that analogous to the breadth or narrowness of the case-definition (see (1) above), the severity of the illness is reflected in these instruments as being higher or lower.

*Positive Family History.* Our assessment of a positive family history is methodologically problematic. Male probands are less informed and less reliable than female informants (Angst et al. 1983). Men therefore more rarely supply a positive family history. Since we did not interview relatives, ours can only be vague information. We nonetheless found a clearer association between the groups that had been given a diagnosis of depression and a positive family history than with the control subjects.

If, to summarize, we compare the five diagnostic concepts, we find a triad. The narrowest case-definition is the one with the Feighner criteria, which probably not only produces an understatement of morbidity, but also selects a group with a rather unfavorable prognosis. A mid-position is held by the RDC and EDE(SYM) criteria. They provide nearly the same information regarding prevalence and severity. The EDE(SYM) criteria favor case identification of males. The third group, with the broadest diagnostics, comprises the DSM-III and EDE(WORK) classifications. They differ qualitatively more than quantitatively; in the one case-definition, the symptoms predominate, in the other the social impairment.

It is not our goal to prefer one classification to the others but to examine more closely the pros and cons of each. We are

of the opinion that much could be gained by a more exact comparison of the EDE(SYM) and the RDC criteria, by means of other projects. The RDC criteria ought to be checked by a more precise definition of the social impairment and a choice of different thresholds for symptom number. The EDE(WORK) and EDE(SYM) criteria should be further examined as to the validity of the occupational impairment, subdivided by sex and in older age groups.

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## Appendix

SPIKE-Interview (1979, extended version) Text assessing social impairment

### 1. Extent of Subjective Impairment Caused by Depression Assessed by a Thermometer Analog-Scale<sup>1</sup>

‘How much did you worry and think about this depressive mood change?’ (Interviewer hands over a copy of the thermometer scale) ‘Please indicate the extent of your worries by means of this thermometer. If you didn’t worry at all, make a cross at the bottom of the scale. If you worried a lot, make the cross on the top. If your worries lay in between, indicate the point corresponding with your situation.’

### 2. Social Impairment

‘Did your depressive mood have any effect upon your daily life? Were there things you were not able to accomplish as well as before? Do you feel in any way handicapped or did you experience difficulties?’ (please mark all corresponding categories)

#### 2.1 in your work?

- no
- environmental reactions
- absence from work
- loss of job
- loss of performance
- manifest conflicts

#### 2.2 with social contacts?

- no
- withdrawal
- conflicts
- environmental reactions

#### 2.3 in your leisure time activities?

- no
- activities
- satisfaction

#### 2.4 in relation to partner (in case you live with partner)?

- no
- withdrawal
- conflicts
- separation

<sup>1</sup> The same questions were asked for all other symptoms or syndromes (e.g. headache, anxiety, etc)

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