

The Concept of Distinct but Voluminous Groups of Bipolar and Unipolar Diseases

III. Bipolar and Unipolar Comparison

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Summary. Comparing unipolar diseases ($n = 121$) as one group with bipolar diseases ($n = 86$) as another group (both groups including affective and schizoaffective disorders) relevant differences were found in sex distribution, age at onset, premorbid personality, long-term course and some aspects of long-term outcome. Although building two voluminous groups of “unipolar diseases” and “bipolar diseases” runs some risk of inhomogeneity, this danger could perhaps be limited by referring to the “affective subtype” and the “schizoaffective subtype”.

Key words: Affective disorders – Schizoaffective disorders – Unipolar diseases – Bipolar diseases – Premorbid features – Long-term course – Long-term outcome

Introduction

Relevant similarities between affective and schizoaffective disorders have been found (Marneros et al. 1989 a–c; contributions in Marneros and Tsuang 1990). The dichotomy of affective disorders into unipolar and bipolar forms, based on empirical data (Angst 1966, 1980a, b, 1986a, b; Angst and Clayton 1986; Perris 1966, 1969; Winokur and Clayton 1967), seems to be valid also for schizoaffective disorders (Angst 1986c, 1989; Marneros et al. 1989 a–c; Rohde et al. 1990; Winokur et al. 1990). The first two parts of the present study (this issue) showed that unipolar affective and unipolar schizoaffective disorders have more similarities than differences, and that the same is true for bipolar affective and bipolar schizoaffective disorders. These findings could to some extent, but not fully, support the assumption of two voluminous entities, namely “unipolar diseases” and “bipolar diseases”, each including affective and schizoaffective disorders as two related subtypes. But using the terms “unipolar diseases” and “bipolar diseases” instead of “affective disorders” or “schizoaffective disorders” would

make sense only if the well-known differences between unipolar and bipolar affective disorders and unipolar and bipolar schizoaffective disorders still remain after building these two voluminous groups and if they can clearly be separated on several levels. The aim of part III of the present study is to test this hypothesis of two voluminous entities with reliable differences between them. The two groups “unipolar diseases” and “bipolar diseases” (each including affective and schizoaffective subtypes) were compared in the same way as in part I (bipolar disorders) and in part II (unipolar disorders), (this issue).

After the comparison we discuss the similarities and differences found, together with findings resulting from the comparison of unipolar and bipolar affective disorders and from the comparison of unipolar and bipolar schizoaffective disorders.

Materials and Methods

Material, methods and definitions are described in part I of this study (this issue).

The variables compared here were the same as for the comparison of bipolar affective and schizoaffective disorders (part I, this issue) and unipolar affective and schizoaffective disorders (part II, this issue). The definitions and explanations of variables are given in the appropriate section of part I.

In this part of the study the unipolar group consists of 121 patients (76 affective and 45 schizoaffective), and the bipolar group of 86 patients (30 affective and 56 schizoaffective).

Results

For definitions and explanations of variables and terms used, see the corresponding sections in part I of the study (this journal).

Sociodemographic and Premorbid Data

Significant differences were found between unipolar and bipolar patients regarding sex distribution. Females were

Table 1. Features of population studied

	Unipolar (n = 121)	Bipolar (n = 86)	
Sex			
Male	22.3	41.9%	$P = 0.003^{**a}$
Female	77.7%	58.1%	
Age at onset			
Arithmetic mean	35.9	29.7	$P = 0.000^{**b}$
Median	36.0	27.5	
Standard deviation	10.9	10.3	$P = 0.000^{**c}$
Minimum value	15	15	
Maximum value	63	56	
Length of observation time			
Arithmetic mean	28.3	24.4	$P = 0.007^{**b}$
Median	27.0	24.0	
Standard deviation	8.8	11.1	$P = 0.002^{**c}$
Minimum value	10	10	
Maximum value	56	61	

^a Chi-square test; ^b *t*-test; ^c Mann-Whitney U-test

* $P < 0.05$; ** $P < 0.01$

significantly more frequent and males significantly less frequent in the group of unipolar patients than in the group of bipolars (Table 1).

The age at onset in unipolar patients was significantly higher than in bipolar patients (Table 1).

The differences found regarding stable heterosexual partnership before first manifestation depend on the age of the patients. Disregarding patients younger than 25 years, no differences between the two groups were found (Table 2). The differences found regarding marital status at first manifestation could also be eliminated in this way (Table 2).

The distribution of the various types of premorbid personality differed between the two groups: obsessoid personalities were found much more frequently in the group of unipolar patients than in the bipolars; conversely, many more sthenic/high-self-confident personalities were found in the bipolar group. No differences between the two groups were found regarding educational level, occupation at onset of the illness, premorbid social interactions, frequency of mental illness in the family, broken home situation, season of birth (Table 2), parents' social class, patient's social class at onset or patient's highest achieved social class (Table 3).

Life events before onset or at least once during course were more frequent in the group of bipolar patients, but the difference vanished when comparing the frequency of life events before the first episode and the number of episodes with or without life events (Table 2).

Long-Term Course

Polyphasic Course. Significantly more bipolar patients than unipolars had a polyphasic course, i.e. more bipolar patients suffered four or more episodes during the course of illness. The average number of episodes in unipolar

Table 2. Premorbid and sociodemographic features

	Uni- polar (n = 121)	Bi- polar (n = 86)	
Educational level			$P = 0.116^a$
Lowest level	6.6%	2.3%	
Low level	56.2%	45.3%	
Middle level	13.2%	16.3%	
High level	24.0%	36.0%	
Occupation at onset of illness			$P = 0.959^a$
Unemployed	0.0%	2.3%	
Housewife	47.9%	20.9%	
Unskilled worker	10.7%	10.5%	
Skilled worker	5.8%	10.5%	
White collar worker	24.0%	23.3%	
Top white collar worker	4.1%	11.6%	
Self-employed	4.1%	0.0%	
In training	3.3%	20.9%	
Stable heterosexual partnership before onset (> 6 months)			
Total	84.3%	65.1%	$P = 0.001^{**a}$
Patients older than 25 years	91.9%	86.8%	$P = 0.313^a$
Female patients > 25 years	92.5%	83.3%	$P = 0.284^a$
Male patients > 25 years	89.5%	91.3%	$P = 0.841^a$
Married at onset			
Total	76.0%	54.7%	$P = 0.001^{**a}$
Patients older than 25 years	84.8%	73.6%	$P = 0.092^a$
Female patients > 25 years	83.8%	67.7%	$P = 0.050^{*a}$
Male patients > 25 years	89.5%	82.6%	$P = 0.527^a$
Premorbid personality (global categories)			$P = 0.000^{**a}$
Obsessoid (typus melancholicus)	45.8%	19.3%	
Asthenic/low self-confidence	32.2%	38.6%	
Sthenic/high self-confidence	22.0%	42.2%	
Premorbid social interactions			$P = 0.749^a$
Tendency to isolation	30.8%	32.9%	
No tendency to isolation	69.2%	67.1%	
Mental illness in the family	60.3%	65.1%	$P = 0.484^a$
Broken home situation	28.1%	34.9%	$P = 0.298^a$
Life events			
Before first episode	52.1%	48.8%	$P = 0.468^a$
At least once during course	70.2%	83.7%	$P = 0.026^{*a}$
Episodes with life event	32.4%	30.3%	$P = 0.457^a$
Season of birth			$P = 0.468^a$
Spring (March to May)	24.8%	24.4%	
Summer (June to August)	25.6%	22.1%	
Autumn (September to November)	26.4%	20.9%	
Winter (December to February)	23.1%	32.6%	

^a Chi-square test; ^b *t*-test; ^c Mann-Whitney U-test

* $P < 0.05$; ** $P < 0.01$

Table 3. Social classes

	Unipolar (n = 121)	Bipolar (n = 86)	
Parents' social class			$P = 0.150^a$
I	5.0%	9.3%	
II	14.0%	23.3%	
III	29.8%	26.7%	
IV	36.4%	33.7%	
V	14.9%	7.0%	
Patient's social class at onset			$P = 0.139^a$
I	4.1%	9.3%	
II	18.2%	29.1%	
III	33.1%	23.3%	
IV	37.2%	32.6%	
V	7.4%	5.8%	
Patient's highest achieved social class			$P = 0.170^a$
I	6.6%	14.0%	
II	18.2%	26.7%	
III	32.2%	24.4%	
IV	36.4%	29.1%	
V	6.6%	5.8%	

I, Upper classes, upper middle class; II, middle middle class; III, lower middle class; IV, upper lower class; V, low lower class

^a Chi-square test

patients was 3.4 (range 1–17), while the average number of episodes in bipolar patients was 5.4 (range 1–19; Table 4).

Prodromal Symptoms. A long prodromal symptomatology, i.e. changes of behaviour and/or mood or a feeling of illness for at least 6 months before the first episode, was found much more frequently in unipolar than in bipolar patients (Table 4).

Annual Frequency of Episodes. The annual frequency of episodes was significantly higher in bipolar than in unipolar patients (Table 4).

Number of Cycles. Bipolar patients had significantly more cycles during the course than unipolar patients (ratio 1.7:1; Table 4).

Annual Frequency of Cycles. The annual frequency of cycles was found to be significantly higher in bipolar than in unipolar patients (Table 4).

Average Length of Episodes and Cycles. The average length of episodes and cycles was individually estimated for every patient (see also part I, this issue). No significant differences were found regarding average length of episode, but there were significant differences between the two groups in regard to average cycle length, the duration of the interval between episodes being greater in unipolar patients.

Table 4. Parameters of long-term course

	Uni- polar (n = 121)	Bi- polar (n = 86)	
Polyphasic course (> 3 episodes)	44.6%	72.1%	$P = 0.000^{**a}$
Prodromal symptoms (> 6 months)	32.2%	14.0%	$P = 0.003^{**a}$
Annual frequency of episodes			
Geometric mean	0.13	0.25	$P = 0.000^{**d}$
Median	0.12	0.28	$P = 0.000^c$
Standard deviation	0.12	0.22	
Minimum value	0.03	0.03	
Maximum value	0.91	1.42	
Number of cycles			
Number of patients	105	81	
Geometric mean	2.8	4.7	$P = 0.000^{**d}$
Median	3.0	5.0	$P = 0.000^{**c}$
Standard deviation	3.1	4.1	
Minimum value	1	1	
Maximum value	16	18	
Annual frequency of cycles			
Number of patients	105	81	
Geometric mean	0.24	0.41	$P = 0.000^{**d}$
Median	0.36	0.43	$P = 0.000^{**c}$
Standard deviation	0.43	0.38	
Minimum value	0.03	0.07	
Maximum value	3.00	1.54	
Average length of episode (months)			
Geometric mean	1.9	1.7	$P = 0.116^d$
Median	2.3	2.1	$P = 0.226^c$
Standard deviation	1.6	1.3	
Minimum value	0.3	0.4	
Maximum value	12.0	8.4	
Average cycle length (months)			
Number of patients	105	81	
Geometric mean	37.4	20.6	$P = 0.000^{**d}$
Median	54.1	28.1	$P = 0.000^{**c}$
Standard deviation	62.9	33.6	
Minimum value	4.0	7.8	
Maximum value	349.5	164.3	
Activity of illness (years)			
Arithmetic mean	15.0	15.6	$P = 0.725^b$
Median	14.0	14.02	$P = 0.510^c$
Standard deviation	12.3	11.1	
Minimum value	0.0	0.0	
Maximum value	51.0	47.0	
Inactivity of illness (years)			
Number of patients	97	58	
Arithmetic mean	16.0	11.9	$P = 0.002^{**b}$
Median	19.0	10.0	$P = 0.003^{**c}$
Standard deviation	7.9	7.4	
Minimum value	4.0	4.0	
Maximum value	34.0	34.0	

^a Chi-square test; ^b *t*-test; ^c Mann-Whitney U-test; ^d *t*-test (log-values)

* $P < 0.05$; ** $P < 0.01$

Table 5. Long-term outcome and social consequences of the illness

	Unipolar (n = 121)	Bipolar (n = 86)	
Global Assessment Scale			$P = 0.345^a$
No difficulties (score 91–100)	60.3%	53.5%	
Slight difficulties (score 71–90)	18.2%	12.8%	
Moderate difficulties (score 51–70)	12.4%	17.4%	
Severe difficulties (score 31–50)	6.6%	12.8%	
Very severe difficulties (score 0–30)	2.5%	3.5%	
Arithmetic mean	84.3	78.7	$P = 0.078^b$
Median	91.0	91.0	$P = 0.215^c$
Standard deviation	21.0	24.1	
Disability Assessment Schedule			$P = 0.072^a$
Excellent adjustment (score 0)	62.8%	54.7%	
Very good adjustment (score 1)	20.7%	14.0%	
Good adjustment (score 2)	8.3%	20.9%	
Fair adjustment (score 3)	4.1%	3.5%	
Poor adjustment (score 4)	4.1%	7.0%	
Very poor adjustment (score 5)	0.0%	0.0%	
Living situation at end of observation time	(n = 98)	(n = 76)	$P = 0.026^{**}$
No impact on autarky because of mental illness	90.8%	77.6%	
Without autarky because of mental illness	7.1%	21.1%	
Permanent hospitalized	2.0%	1.3%	
Downward occupational drift (without housewives)	(n = 62) 29.0%	(n = 62) 43.5%	$P = 0.093^a$
Downward social drift (without housewives)	(n = 51) 19.6%	(n = 59) 27.1%	$P = 0.355^a$
Premature retirement (because of mental illness)	(n = 62) 22.6%	(n = 62) 29.0%	$P = 0.412^a$
Achievement of the expected social development	(n = 121) 82.6%	(n = 86) 69.8%	$P = 0.029^{**}$

^a Chi-square test; ^b *t*-test; ^c Mann-Whitney U-test

Activity and Inactivity of the Illness. No differences were found between unipolar and bipolar patients regarding activity of the illness (time between beginning of first and end of last episode). In contrast, significant differences were found between the two groups regarding inactivity of the illness (last relapse-free period longer than 3 years), unipolar patients having a significantly longer inactive period (Table 4).

Long-Term Outcome

Level of Functioning (GAS). No significant differences were found between unipolar and bipolar patients re-

garding the distribution of the various categories of the Global Assessment Scale (GAS). The mean score, however, is a little more favourable in the unipolar than in the bipolar group (Table 5).

Disability according to WHO/DAS. Again, no significant differences were found between unipolar and bipolar patients according to the Disability Assessment Schedule (WHO/DAS), although the unipolar patients displayed excellent or very good adjustment more frequently than bipolars (Table 5).

Social Consequences. Although more bipolar patients suffered negative consequences of the illness, such as living without autarky because of the illness, downward occupational drift, downward social drift, premature retirement or non-achievement of the expected social development, the differences were only significant regarding living situation at the end of the observation time and non-achievement of the expected social development (Table 5).

Conclusions and Discussion

Recent research has confirmed former assumptions that schizoaffective disorders occupy a position between affective and schizophrenic disorders regarding relevant sociodemographic and premorbid features as well as patterns of course, outcome, treatment response and prophylaxis (Angst 1986c, 1989; Angst et al. 1980; Deister 1990; Marneros et al. 1988 a–c, 1989 a–e; Maj 1985; Maj and Perris 1985; see also various contributions in Marneros and Tsuang 1986; 1990).

It seems certain that schizoaffective disorders are not identical with schizophrenic disorders, although in some individual cases the schizodominance is clear. It can also be said that there are some significant differences between schizoaffective and affective disorders in spite of relevant similarities (contributions in Marneros and Tsuang 1990).

It also seems certain that unipolar affective disorders differ significantly from bipolar affective ones, especially in regard to some relevant sociodemographic and premorbid data and some patterns of course (Angst 1978, 1980a, b, 1986a, b; Angst et al. 1973; Rohde et al. 1990; Winokur and Clayton 1967). Very similar differences like that in affective unipolar and affective bipolar patients were found between bipolar and unipolar schizoaffective patients (Angst 1986c, 1989; Dunner 1980; Perris 1982; Marneros et al. 1989 a–c; Winokur et al. 1986, 1990).

The two foregoing papers (parts I and II of the present study) showed that only slight differences exist between bipolar affective and bipolar schizoaffective disorders. In particular, no relevant differences were found regarding sociodemographic and premorbid data or patterns of course.

The differences found mainly concerned some aspects of long-term outcome.

Similarly, between unipolar affective and unipolar schizoaffective disorders more similarities than differ-

ences were found. The main difference concerning sociodemographic and premorbid data were in age at onset of the illness and premorbid personality. The patterns of course in both groups were very similar, showing no statistical differences. Only in some aspects of long-term outcome were differences found, in favour of affective unipolar patients.

The present study shows that even after creating two voluminous groups of unipolar diseases and bipolar diseases, each including both affective and schizoaffective disorders, the main differences and similarities between unipolar and bipolar types remained unchanged.

This finding gives further support to the assumption of the two distinct entities, namely unipolar and bipolar diseases, which, however, are phenomenologically and prognostically inhomogeneous.

Future research has to isolate more precisely the reasons for the inhomogeneity of schizoaffective disorders and to find out whether the proportion of schizodominant cases in a population could be responsible for the differences found between unipolar affective and unipolar schizoaffective disorders, on the one hand, and between bipolar affective and bipolar schizoaffective disorders, on the other. Perhaps, after excluding a schizodominant group, affective and schizoaffective disorders could be classified as two subtypes of unipolar diseases and of bipolar diseases. It has to be investigated whether a schizodominant type of schizoaffective disorders represents a bridge between schizophrenia and bipolar and unipolar diseases (Angst 1986c; Kendell 1986; Marneros et al. 1988c). But first of all, as already pointed out in part II, "schizodominance" has to be defined precisely. This problem is still unsolved.

As long as inhomogeneity exists and the reasons for it are unclear, it is difficult to define a voluminous diagnostic category.

Nevertheless, after carrying out the presented comparisons the danger of inhomogeneity of two voluminous disease groups, bipolar and unipolar diseases, each including both affective and schizoaffective disorders, seems not to be very high, if each group is referred to as including affective and schizoaffective subtypes. It must also be pointed out that homogeneity in mental diseases is uncommon; pure affective unipolar diseases are also inhomogeneous (Winokur and Clayton 1967; Winokur 1972; Coryell and Winokur 1984), as are pure affective bipolar diseases (Angst 1978; Dunner et al. 1976; Coryell et al. 1984; Klerman 1981).

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References

Angst J (1966) Zur Aetiologie und Nosologie endogener depressiver Psychosen. Eine genetische, soziologische und klinische Studie. Springer, Berlin Heidelberg New York (Monographien aus dem Gesamtgebiet der Neurologie und Psychiatrie, Heft 112)

- Angst J (1978) The course of affective disorders. II. Typology of bipolar manic-depressive illness. *Arch Psychiatr Nervenkr* 226: 65–73
- Angst J (1980a) Verlauf unipolar depressiver, bipolar manisch-depressiver und schizoaffectiver Erkrankungen und Psychosen. *Fortschr Neurol Psychiatr* 48: 3–30
- Angst J (1980b) Clinical typology of bipolar illness. In: Belmaker RH, Praag HM van (eds) *Mania. An evolving concept*. Spectrum, Jamaica, NY, pp 61–76
- Angst J (1986a) The course of affective disorders. *Psychopathology* 19 [Suppl 2]: 47–52
- Angst J (1986b) The course of major depression, atypical bipolar disorder, and bipolar disorder. In: Hippus H, Klerman GL, Matussek N (eds) *New results in depression research*. Springer, Berlin Heidelberg New York, pp 26–35
- Angst J (1986c) The course of schizoaffective disorders. In: Marneros A, Tsuang MT (eds) *Schizoaffective psychoses*. Springer, Berlin Heidelberg New York, pp 63–93
- Angst J (1989) Der Verlauf schizoaffectiver Psychosen. In: Marneros A (ed) *Schizoaffective Psychosen. Diagnose, Therapie und Prophylaxe*. Springer, Berlin Heidelberg New York, pp 47–54
- Angst J, Clayton PJ (1986) Premorbid personality of depressive, bipolar, and schizophrenic patients with special reference to suicidal issues. *Compr Psychiatry* 27: 511–532
- Angst J, Baastrup P, Grof P, Hippus H, Pöldinger W, Weis P (1973) The course of monopolar depression and bipolar psychoses. *Psychiatr Neurol Neurochir* 76: 489–500
- Angst J, Felder W, Lohmeyer R (1980) Course of schizoaffective psychoses: results of a follow-up study. *Schizophr Bull* 6: 579–585
- Coryell W, Winokur G (1984) Depression spectrum disorders: clinical diagnosis and biological implications. In: Post RM, Ballenger JC (eds) *Neurobiology of mood disorders*. Williams and Wilkins, Baltimore, pp 102–106
- Coryell W, Endicott J, Reich T, Andreasen NC, Keller MB (1984) A family study of bipolar II disorder. *Br J Psychiatry* 145: 49–54
- Deister A, Marneros A, Rohde A, Staab B, Jünemann H (1990) Long-term outcome of affective, schizoaffective and schizophrenic disorders – a comparison. In: Marneros A, Tsuang MT (eds) *Affective and schizoaffective disorders. Similarities and differences*. Springer, Berlin Heidelberg New York, pp 157–167
- Dunner DL (1980) Unipolar and bipolar depression: recent findings from clinical and biologic studies. In: Mendels J, Amsterdam JD (eds) *The psychobiology of affective disorders*. Karger, Basel, pp 11–24
- Dunner DL, Fleiss JL, Fieve RR (1976) The course of development of mania in patients with recurrent depression. *Am J Psychiatry* 133: 905–908
- Kendell RE (1986) The relationship of schizoaffective illnesses to schizophrenic and affective disorders. In: Marneros A, Tsuang MT (eds) *Schizoaffective psychoses*. Springer, Berlin Heidelberg New York, pp 18–30
- Klerman GL (1981) The spectrum of mania. *Compr Psychiatry* 22: 11–20
- Maj M (1985) Clinical course and outcome of schizoaffective disorders: a three-year follow-up study. *Acta Psychiatr Scand* 72: 542–550
- Maj M, Perris C (1985) An approach to the diagnosis and the classification of schizoaffective disorders for research purposes. *Acta Psychiatr Scand* 72: 405–413
- Marneros A, Tsuang MT (eds) (1986) *Schizoaffective psychoses*. Springer, Berlin Heidelberg New York
- Marneros A, Tsuang MT (eds) (1990) *Affective and schizoaffective disorders. Similarities and differences*. Springer, Berlin Heidelberg New York
- Marneros A, Deister A, Rohde A, Jünemann H, Fimmers R (1988a) Long-term course of schizoaffective disorders. I. Definitions, methods, frequency of episodes and cycles. *Eur Arch Psychiatr Neurol Sci* 237: 264–275

- Marneros A, Rohde A, Deister A, Jünemann H, Fimmers R (1988b) Long-term course of schizoaffective disorders. II. Length of cycles, episodes, and intervals. *Eur Arch Psychiatry Neurol Sci* 237: 276–282
- Marneros A, Rohde A, Deister A, Fimmers R, Jünemann H (1988c) Long-term course of schizoaffective disorders. III. Onset, type of episodes and syndrome shift, precipitating factors, suicidality, seasonality, inactivity of illness, and outcome. *Eur Arch Psychiatry Neurol Sci* 237: 283–290
- Marneros A, Deister A, Rohde A (1989a) Unipolar and Bipolar schizoaffective disorders: a comparative study. I. Premorbid and sociodemographic features. *Eur Arch Psychiatry Neurol Sci* 239: 158–163
- Marneros A, Rohde A, Deister A (1989b) Unipolar and Bipolar schizoaffective disorders: a comparative study. II. Long-term course. *Eur Arch Psychiatry Neurol Sci* 239: 164–170
- Marneros A, Deister A, Rohde A, Jünemann H (1989c) Unipolar and bipolar schizoaffective disorders: A comparative study. III. Long-term outcome *Eur Arch Psychiatry Neurol Sci* 239: 171–176
- Marneros A, Deister A, Rohde A (1989d) Quality of affective symptomatology and its importance for the definition of schizoaffective disorders. *Psychopathology* 22: 152–160
- Marneros A, Rohde A, Deister A, Steinmeyer EM (1989e) Prä-morbide und soziale Merkmale von Patienten mit schizoaffectiven Psychosen. *Fortschr Neurol Psychiatr* 57: 205–212
- Perris C (1966) A study of bipolar (manic-depressive) and unipolar recurrent depressive psychoses. *Acta Psychiatr Scand [Suppl]* 194: 1–189
- Perris C (1969) The separation of bipolar (manic-depressive) from unipolar recurrent depressive psychoses. *Behav Neuropsychiatry* 1: 17–24
- Perris C (1982) The distinction between bipolar and unipolar affective disorders. In: Paykel ES (ed) *Handbook of affective disorders*. Churchill Livingstone, Edinburgh, pp 45–58
- Rohde A, Marneros A, Deister A, Jünemann H, Staab B (1990) Course of affective and schizoaffective disorders. In: Marneros A, Tsuang MT (Eds) *Affective and schizoaffective disorders. Similarities and differences*. Springer, Berlin Heidelberg New York, pp 146–156
- Winokur G (1972) Depression spectrum disease: description and family study. *Comp Psychiatr* 13: 3–8
- Winokur G, Clayton PJ (1967) Family history studies. I. Two types of affective disorders separated according to genetic and clinical factors. In: Wortis J (ed) *Recent advances in biological psychiatry*, vol. 9. Plenum Press, New York, pp 35–50
- Winokur G, Kadramas A, Crowe R (1986) Schizoaffective mania: family history and clinical characteristics. In: Marneros A, Tsuang MT (eds) *schizoaffective psychoses*. Springer, Berlin Heidelberg New York, pp 115–122
- Winokur G, Black DW, Nasrallah A (1990) The schizoaffective continuum: non-psychotic, mood congruent, and mood incongruent. In: Marneros A, Tsuang MT (eds) *Affective and schizoaffective disorders. Similarities and differences*. Springer, Berlin Heidelberg New York, pp 23–32