Eur Arch Psychiatr Neurol Sci (1988) 237:264–275

European Archives of Psychiatry and Neurological Sciences

Long-term Course of Schizoaffective Disorders*

Part I: Definitions, Methods, Frequency of Episodes and Cycles

A. Marneros[1], A. Deister[1], A. Rohde[1], H. Jünemann[1], and R. Fimmers[2]

[1]Psychiatric Department of the University of Bonn, Sigmund-Freud-Strasse 25, D-5300 Bonn, Federal Republic of Germany
[2]Institute for Medical Documentation and Statistics of the University of Bonn, D-5300 Bonn, Federal Republic of Germany

Summary. The present study (Cologne study) investigated the long-term course ($\bar{x} = 25.6$ years, minimum 10, maximum 59 years) of 72 schizoaffective patients. The diagnosis was based on the longitudinal approach. All patients were interviewed personally, using the Present State Examination and a pool of questions based on some instruments of the WHO (DAS, PIRS, etc.). The course was found to be usually polyphasic (more than 3 episodes) and only exceptionally monophasic (1 episode). For the purposes of statistical analysis an episode was considered in terms of time between the beginning and ending of inpatient or inpatient-like treatment. The number of episodes and cycles were found to be independent from premorbid and sociodemographic variables. But a significant relation was found between number of episodes (and cycles) and (a) polarity of the affective symptomatology, (b) presence of psychotic productive symptoms, (c) polymorphous course, (d) age at onset, and (e) duration of activity of the illness. It can be said that schizoaffective disorders are recurrent whereby the frequency of relapses is higher in bipolar than in unipolar types.

Key words: Schizoaffective disorders – Definition – Long-term course

1. Introduction

There are few studies on the long-term course of schizoaffective disorders, and most of them suffer serious methodological problems. As Angst (1986) has already pointed out, the majority of studies on the course of schizoaffective disorders have concentrated on the beginning and the end of the course, i.e., on onset and outcome, little attention being paid to what occurs in between. But precisely this period between onset and outcome is of extraordinary importance for treatment and prophylaxis. Other important shortcomings of studies concerning the course of schizoaffective disorders are the length of the follow-up period, and the definitions used. Studies covering more than 20 years are exceptions (Angst 1980a, b; Angst et al. 1979a, b; Angst et al. 1980; Tsuang and Simpson 1984). The definition of schizoaffective disorders varies considerably (Marneros and Tsuang 1986; Tsuang and Marneros 1986). In particular, little attention has been paid to the longitudinal aspect, so that most of the studies have referred exclusively to concurrent schizoaffective symptomatology ignoring successive symptomatology, an approach which has proved to be mistaken (Angst 1986; Marneros et al. 1986a, b, c; Marneros et al. 1988a, b, c; Maj 1985; Maj and Perris 1985). Another problem in definition relates to the quality of the affective component: it seems that not every depressive or euphoric symptomatology qualifies a schizophrenic disorder as schizoaffective, but only the melancholic or manic symptomatology (Marneros et al. 1986c; Marneros et al. 1988c).

The present study on the course of schizoaffective disorders pays attention to all three of the aspects: long follow-up period, longitudinal approach, and narrow definition of schizoaffective disorders.

2. Definitions

The definitions used were based on two assumptions:

1. The diagnostic value of the sequential schizoaffective symptomatology is equal to that of the concurrent

Offprint requests to: A. Marneros

*Supported by the German Research Association (Deutsche Forschungsgemeinschaft) by grants No. Ma 915–1/1 and Ma 915–1/2. The data analysis and statistical evaluation were carried out in the Institute for Medical Documentation and Statistics of the University of Bonn (Head: Prof. Dr. M. P. Baur)

symptomatology. This has been proved empirically (Marneros et al. 1988c; Marneros et al. 1986a, b, c).

2. Not every affective symptomatology qualifies a concurrent or sequential schizophrenic symptomatology as schizoaffective, but only melancholic or manic symptomatology as it is defined for instance in DSM-III and DSM-III-R (melancholic type of major depressive disorder and manic episode). This has also been proved empirically (Marneros et al. 1986; Marneros et al. 1988c). The terms episode and disorder or illness have been distinguished (see Appendix): a disorder or illness is *longitudinally* defined, whereas an episode is defined *cross-sectionally*.

As the Appendix shows, *schizoaffective disorders were defined as the concurrent or sequential presence of schizophrenic (or mood-incongruent paranoid) symptoms and melancholic or manic symptomatology.*

3. Material

The present investigation is part of the Cologne Study. It was based on the personal follow-up investigations of 205 inpatients of the Cologne University Clinic diagnosed as having a schizoaffective disorder (case-in-between according to Schneider's nomenclature) or schizophrenia suspected (Marneros 1984a, b, c; Marneros et al. 1984; Marneros et al. 1986a, b, c) between 1950 and 1979. During this period of time the diagnoses were made strictly according to Schneider's criteria (Schneider 1959) under the supervision of the hospital's head, himself an orthodox pupil of Schneider. Evaluation of 4157 case records of patients with various diagnoses made during the 30-year period showed that homogeneity of diagnoses can be assumed (Marneros 1984a, b, c; Marneros et al. 1986a). In addition to personal interviews with the patients and the available relatives or other persons familiar with the patient all the patients' admissions were evaluated (820 admissions to various mental institutions in the Federal Republic of Germany). Considering all available information, 72 patients fulfilled the criteria for schizoaffective disorders, 97 for schizophrenia, and the remaining 36 were classified as having organic mental disorders, personality disturbances, or neurotic disorders. The following findings refer to the 72 schizoaffective patients, features of whom are shown in Table 1.

Table 1. Features of study population. Cologne study – schizoaffective disorders ($N = 72$)

Sex:	Female	($N = 46$)	64%	ratio 1.8:1
	Male	($N = 26$)	36%	
Age at onset (years)				Median = 30.50
				$\bar{x}$ = 32.11
				SD = 10.38
				Min. = 15.00
				Max. = 58.00
Age at end of follow-up period (years)				Median = 57.50
				$\bar{x}$ = 57.72
				SD = 13.58
				Min. = 27.00
				Max. = 87.00
Duration of follow-up period (years)				Median = 25.00
				$\bar{x}$ = 25.61
				SD = 10.46
				Min. = 10.00
				Max. = 59.00
Patients personally interviewed				100%
Place of interview:				
Patients visited us				39%
Patients were visited at home				57%
Psychiatric hospital/care unit				4%
Patients' relatives or relevant familiar persons interviewed additionally				56%

4. Elements of Course

Course was defined according to Angst (1986) namely the signs and symptoms over the whole lifetime following the first manifestation of a psychiatric disorder. In this sense onset, episodes, cycles and intervals, symptomatology (or type of episodes), suicidality, precipitating factors, seasonality, activity/inactivity of the illness (last relapse-free period), and outcome were investigated. In the present (Part I) paper the frequency of episodes and cycles are reported, Part II will cover the length of episodes, intervals and cycles, Part III the remaining elements of course.

5. Methods

5.1 Instruments of Evaluation. All patients were interviewed personally. The exploratory framework used was the German translation of the Present State Examination (PSE, Wing et al. 1974, 1982) and a pool of questions based on some instruments of the WHO (see Table 2). The PSE was used in such a way as

Table 2. Cologne long-term study

Instruments of follow-up investigation

1. Present State Examination (PSE, Wing et al. 1982)
2. A modified version of PSE for follow-up investigations (Follow-up PSE)
3. Course protocol consisting of:
   a) DAS = Disability Assessment Schedule WHO 1978, 1986) (*)
   b) FU-HSD = Follow-up History and Sociodemographic Description Schedule (WHO) (**)
   c) DHSD = Past History and Sociodemographic Description Schedule (WHO) (**)
   d) PIRS = Psychological Impairment Rating Schedule (WHO 1986) (*)
   e) GAS = Global Assessment Scale (Spitzer et al. 1976)
   f) own completions, i.e., sociodemographic data, therapy etc.

(*) In Schubarth et al. (1986)
(**) In WHO (1979)

to cover both the present state and the past course. Each interview was tape-recorded and initially evaluated by a team member other than the one who had conducted the interview. After a case discussion involving the interviewer and the evaluater the final categorization of the case was made according to the criteria listed in the Appendix. The final statistical analysis was carried out by two of us (H.J. and R.F.) who were not involved in interviewing the patients or in the evaluation of the case records.

The case records were evaluated using a standardized protocol containing sections on general information, history, social factors, family history, life events, psychopathological symptoms, somatic findings, treatment, and outcome. The symptom list of that protocol was AMDP-oriented.

5.2 Statistics. It was uncertain whether or not parametric methods, especially those based on the assumption of a normal distribution, could be used for analysis. For some variables, information available from former studies (Angst and Weis 1967; Angst et al. 1973; Angst 1980a) suggested a log-normal distribution. Thus for cases in question the empirical distribution functions were checked (graphically) and if necessary a logarithmic transformation was applied.

For the variables considered here – number of episodes, annual frequency of episodes, and annual frequency of cycles – logarithmic transformation seemed to be necessary. After that, comparison of groups was done using *t*-tests if there were only two groups, or one-way analysis of variance and Duncan's multiple range test if there were more than two groups. Correlation with other continuous variables was judged by the product moment correlation (Pearson) if both variables could be regarded as normally distributed (if necessary after transformation). Otherwise Spearman's rank correlation was applied. In addition to the mentioned procedures stepwise multiple regression analysis was used to evaluate interactions between univariate significant variables. Computation was done using SPSSx.

6. Results

6.1 Number of Episodes

The number of episodes per patient ranged from 1 to 18, with an arithmetic mean of 5.59 episodes (median 4 episodes, Fig. 1). It has to be stressed that episode was considered in terms of the time between the beginning and ending of inpatient or inpatient-like treatment. Inpatient-like treatment had to fulfill the following criteria: (a) intensive medical care (treatment with psychotropic drugs and frequent consultation with a psychiatrist), and (b) interruption of usual work or duties. Thus, slight episodes, not fulfilling the above criteria, were not considered for statistical evaluation.

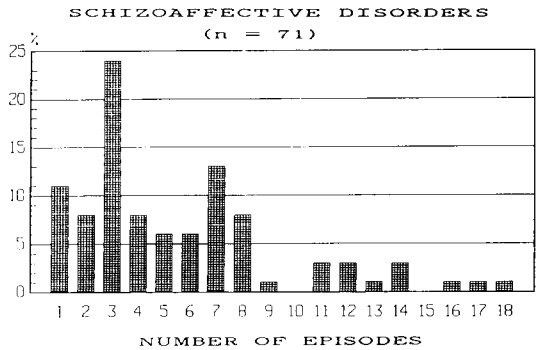

Fig. 1

Using univariate analytical methods, (Table 3) bipolar (manic symptomatology at least once) and polymorphous (more than one type of episode; see also Part III) schizoaffective disorders had significantly more episodes than did unipolars or monomorphous disorders. However, there was a considerable overlap between bipolar, and polymorphous disorders: most bipolars (86%) were also polymorphous, and most unipolars (62%) were also monomorphous. Conversely, most polymorphous disorders (68%) were bipolar, and most monomorphous disorders (82%) were also unipolar. The difference between polymorphous and monomorphous schizoaffective disorders regarding number of episodes became insignificant, however, if patients having only 1 episode (monophasic), who were by definition monomorphous were excluded ($P = 0.321$). It was also found that patients displaying no delusions or hallucinations during the whole course (nonproductive) had significantly less episodes than patients exhibiting a mixture of delusions and hallucinations (paranoid-hallucinatory). Patients with precipitating factors at least once during their course had more episodes ($P = 0.057$). The correlation analysis (Table 4) showed that (a) the younger the patient at onset, the greater the number of episodes, and (b), as expected, the longer the activity of the illness (time between beginning of first and ending of last registered episode), the greater the number of episodes.

The course of schizoaffective disorders was broken down into three categories based on the number of episodes during the follow-up period: (a) monophasic: only 1 episode, (b) oligophasic: 2 or 3 episodes, and (c) polyphasic: 4 and more episodes. The frequency of the three types of course is shown in Fig. 2.

6.2 Annual Frequency of Episodes (AFE)

To achieve better comparability among the various individual cases with follow-up periods varying from 10 to 59 years, the annual frequency of episodes (AFE) was used according to the formula:

$$\text{AFE} = \frac{\text{nE}}{\text{DI}}$$

where nE was number of episodes and DI the duration of illness (years). The AFE was calculated individually.

Table 3. Number of episodes. Schizoaffective disorders ($N = 71$)

Variables	Total	N	Geometric mean	Median	P-values	
Sex	71				0.402	(1)
Female		45	4.53	4.00		
Male		26	3.85	4.00		
Personality	68				0.257	(2)
Obsessoid		19	3.39	3.00		
Sthenic/high-self-confident		20	5.06	6.00		
Asthenic/low-self-confident		29	4.53	5.00		
Premorbid social interactions	71				0.889	(1)
Tendency to social isolation		13	4.39	3.00		
No tendency to social isolation		58	4.24	4.50		
Broken home situation	71				0.554	(1)
Broken home		26	3.97	5.00		
No broken home		45	4.45	4.00		
Stable heterosexual relationship before onset	71				0.221	(1)
Stable relationship (> 6 months)		48	3.95	4.00		
No stable relationship		23	5.03	4.00		
Life event (LE) before onset	71				0.850	(1)
LE before first episode		38	4.20	4.50		
No LE before first episode		33	4.35	4.00		
LE during course	71				0.057	(1)
LE during course		54	4.71	5.00		
No LE during whole course		17	3.13	3.00		
Initial episode	71				0.646	(2)
Melancholic		2	7.14	10.00		
Manic		3	5.24	6.00		
Manic-depressive		5	6.53	7.00		
Schizophrenic		9	4.47	4.00		
Schizodepressive		35	3.81	4.00		
Schizomanic		8	3.68	4.00		
Schizomanic-depressive		4	3.35	3.00		
Non characteristic		5	6.23	7.00		
Schizophrenic episode during course	71				0.155	(1)
Schizophrenic episode during course		17	5.39	6.00		
No schizophrenic episode during course		54	3.97	4.00		
Polarity	71				0.007 **	(1)
Unipolar		36	3.36	3.00		
Bipolar		35	5.46	6.00		
Polymorphism	71				0.002 **	(1)
Monomorphous		27	2.91	3.00		
Polymorphous		44	5.40	6.00		
Polymorphism (without monophasic patients)	63				0.321	(1)
Monomorphous		19	4.57	4.00		
Polymorphous		44	5.40	6.00		
Productive psychotic symptoms	71				0.013 *	(2)
Paranoid		22	3.82	3.00		
Hallucinosis		2	4.47	4.50		
Paranoid-hallucinatory		33	5.64 } *	7.00		
Non productive		14	2.62 } *	2.50		

(1) = t-test; (2) = Anova + Duncan test; * = $P < 0.05$; ** = $P < 0.01$

Table 4. Number of episodes (log) – correlation analysis. Schizoaffective disorders ($N = 71$)

Variable	Pearson r	Significance P
Age at onset	−0.3259	0.006 **
Duration of the follow-up	0.1582	0.188
Age at follow-up	−0.1267	0.292
Length of activity (without monophasic patients, $N = 63$)	0.4246	0.000 **

** = $P < 0.01$

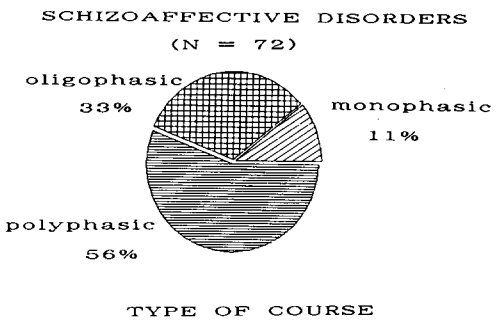

Fig. 2

Table 5. Average AFE and AFC. Schizoaffective disorders

Annual frequency of episodes: (AFE) ($N = 71$)	Median =	0.200
	$\bar{x}$ =	0.254
	SD =	0.227
	Min. =	0.029
	Max. =	1.417
	Ln $\bar{x}$ =	−1.704
	Geometric mean =	0.1819
Annual frequency of cycles: (AFC) ($N = 63$)	Median =	0.304
	$\bar{x}$ =	0.423
	SD =	0.335
	Min. =	0.053
	Max. =	1.333
	Ln $\bar{x}$ =	−1.191
	Geometric mean =	0.3039

As Table 5 shows, the arithmetic mean AFE was found to be 0.25 (median 0.20). Statistical analysis (Table 6) showed that bipolar patients and patients with pure schizophrenic episodes within the course had a significantly higher AFE. Additionally, patients with paranoid-hallucinatory syndromes had a higher AFE than patients without productive psychotic symptoms during the course. Polymorphous patients had a significantly higher AFE than monomorphous, but again, the difference became insignificant if monophasic patients were excluded, as in Sect. 6.1. Pearson correlation analysis (Table 7) showed that the older the patient at the end of the observation time, the lower the AFE. The same result was found, albeit only as a trend, with regard to age at onset: the older the patient at onset, the lower the AFE.

Stepwise multiple regression analysis with the dependent variable AFE (log) was carried out. The independent variables chosen were age at follow-up, polarity, paranoid-hallucinatory symptoms, polymorphism, nonproductive course, and schizophrenic episode during course. Table 8 shows the results of multiple regression analysis with the variables age at follow-up and polymorphism which were selected by the stepwise procedure (Table 8).

6.3 Annual Frequency of Cycles (AFC)

The annual frequency of cycles (AFC) is an important parameter in the course of the schizoaffective disorders, because it is relatively independent from the not accurately definable beginning and end of episodes. It is also independent from the inactivity period of the disorders (Marneros et al. 1988b) and from the rare monophasic cases. It was estimated according to the formula:

$$\text{AFC} = \frac{\text{nC}}{\text{DA}}$$

where DA was the duration of activity of the illness in years (from beginning of first episode until end of last episode) and nC the number of cycles. The AFC was calculated individually. As Table 5 shows, the arithmetic mean value of AFC was 0.42 (median 0.30).

The findings regarding AFC differed from those for AFE and number of episodes: only bipolars and patients with a purely melancholic initial episode had a significantly higher AFC (Tables 9, 10). Patients with a melancholic onset had a significantly higher AFC than patients having a schizodepressive initial episode, but the importance of this finding was limited because only two patients had a melancholic onset.

7. Discussion and Conclusions

There is good agreement in the literature that schizoaffective disorders – as presently defined by the best-known diagnostic systems – are a relatively inhomogeneous group. Therefore, a long-term study on the course of schizoaffective disorders regarding

Table 6. AFE. Schizoaffective disorders ($N = 71$)

Variables	Total	N	Geometric mean	Median	P-values	
Sex	71				0.755	(1)
Female		45	0.18	0.17		
Male		26	0.19	0.21		
Personality	68				0.421	(2)
Obsessoid		19	0.15	0.16		
Sthenic/high-self-confident		20	0.21	0.27		
Asthenic/low-self-confident		29	0.19	0.21		
Premorbid social interactions	71				0.590	(1)
Tendency to social isolation		13	0.16	0.12		
No tendency to social isolation		58	0.19	0.21		
Broken home situation	71				0.463	(1)
Broken home		26	0.16	0.19		
No broken home		45	0.19	0.21		
Stable heterosexual relationship before onset	71				0.407	(1)
Stable relationship (> 6 months)		48	0.17	0.19		
No stable relationship		23	0.20	0.23		
LE before onset	71				0.829	(1)
LE before first episode		38	0.19	0.21		
No LE before first episode		33	0.18	0.17		
LE during course	71				0.089	(1)
LE during course		54	0.20	0.23		
No LE during whole course		17	0.13	0.16		
Initial episode	71				0.343	(2)
Melancholic		2	0.41	0.77		
Manic		3	0.33	0.25		
Manic-depressive		5	0.28	0.39		
Schizophrenic		9	0.19	0.17		
Schizodepressive		35	0.15	0.17		
Schizomanic		8	0.20	0.25		
Schizomanic-depressive		4	0.12	0.10		
Non characteristic		5	0.23	0.28		
Schizophrenic episode during course	71				0.017 *	(1)
Schizophrenic episode during course		17	0.28	0.37		
No schizophrenic episode during course		54	0.16	0.16		
Polarity	71				0.000 **	(1)
Unipolar		36	0.13	0.12		
Bipolar		35	0.26	0.28		
Polymorphism	71				0.001 **	(1)
Monomorphous		27	0.12	0.12		
Polymorphous		44	0.24	0.26		
Polymorphism (without monophasic patients)	63				0.147	(1)
Monomorphous		19	0.18	0.17		
Polymorphous		44	0.24	0.26		
Productive psychotic symptoms	71				0.042 *	(2)
Paranoid		22	0.16	0.23		
Hallucinosis		2	0.14	0.14		
Paranoid-hallucinatory		33	0.24 } *	0.27		
Non productive		14	0.12 } *	0.11		

(1) = t-test; (2) = Anova + Duncan test; * = $P < 0.05$; ** = $P < 0.01$

Table 7. AFE (log) – correlation analysis. Schizoaffective disorders ($N = 71$)

Variable	Pearson r	Significance P
Age at onset	−0.2318	0.052
Age at follow-up	−0.4546	0.000 **

** = $P < 0.01$

Table 8. AFE – stepwise multiple regression. Schizoaffective disorders ($N = 71$)

Variable	Coefficient	β-Coefficient
Age at follow-up	−0.0248	−0.4036
Polymorphism (monomorph = 1, polymorph = 2)	0.5849	0.3400

$R = 0.5654$, $R^2 = 0.3197$, $P = 0.002$, Intercept = −1.2192

Dependent variable: AFE (log)
Independent variables: Age at follow-up, polarity, paranoid-hallucinatory, polymorphism, non-productive, schizophrenic episode during course

them as a homogeneous group might seem to have only limited value, its results possibly depending strongly on the relative sizes of the subgroups represented. This hypothesis has not yet been proved sufficiently, however, and until that is done studies regarding the schizoaffective disorders as one group remain necessary. There are few long-term studies based on operational criteria, covering a long follow-up period, and investigating a good variety of parameters. The investigations of Angst and coworkers form, together with some other studies, the valuable exceptions. Although the course of schizoaffective disorders seems to be very variable and in some aspects individual, some findings do have general validity if a relatively large sample has been investigated over a long period of time.

The present study shows, in agreement with other investigators, that schizoaffective disorders are recurrent, having mainly a polyphasic course (Angst 1980, 1986; Angst and Scharfetter 1988; Rzewuska and Angst 1982a, b). Monophasic cases, i.e., with only 1 episode during the whole period, are possible but infrequent (11% in the present study; Angst (1980) found an even lower proportion, only 3%). It has to be stressed again, that episode was considered in terms of the time between the beginning and ending of inpatient or inpatient-like treatment.

Within our material the number of episodes, and therefore also the number of cycles, was not found to be dependent on premorbid and sociodemographic variables like sex, personality, broken home, mental illness in the family, heterosexual stable relationship before onset, or other social factors. It was also not dependent on the type of the initial episode or the presence of precipitating factors at (or before) onset. But a significant relation was found between number of episodes and (a) polarity of the affective symptomatology, (b) absence or presence of psychotic productive symptoms, (c) polymorphous course, (d) age at onset, and (e) duration of activity of the illness. Bipolarity (i.e., manic symptomatology) and polymorphism (i.e., more than one type of episode during the course), according to the findings of the present study, correlated with a greater number of episodes than unipolarity or monomorphism. But it has to be considered that the variables bipolarity and polymorphism overlapped: most bipolars were also polymorphous, and most unipolars were also monomorphous. Another limitation of the importance of the variable polymorphism was found on exclusion of patients having a monophasic course, who were by definition monomorphous: no significant differences were then found between monomorphous and polymorphous schizoaffective disorders concerning number of episodes. Patients exhibiting a combination of delusions and hallucinations in at least 1 episode (paranoid-hallucinatory) were found to have significantly more episodes than patients not displaying any productive psychotic symptoms (nonproductive). The younger the patient at onset, the greater the number of episodes. The trivial hypothesis that the number of episodes, and thus also of cycles, is dependent on the duration of the illness, i.e., on the observation time, was not confirmed, in contrast to our expectations and to the findings of other authors (Angst 1980, 1986). The interpretation of this finding is interesting in the light of the variable inactivity of the illness (i.e., the last relapse-free period if longer than 3 years). It was found (Marneros et al. 1988b) that the older the patient at the end of the observation time and/or the longer the duration of the illness, the longer the inactivity of the illness. This means that in a sample including a high proportion of older patients (in our population 40% were older than 60 years, 18% older than 70 years, and 10% older than 80 years) and/or patients with long duration of illness (in our sample 65% more than 20 years and 32% more than 30 years), the annual frequency and number of episodes will be independent from the duration of the illness. But in fact a correlation between the number of episodes and the activity of the illness, defined as the period between the beginning of the first and the ending of the last episode, was found: the longer the activity, the higher the number of episodes.

Table 9. AFC. Schizoaffective disorders ($N = 63$)

Variables	Total	N	Geometric mean	Median	P-values	
Sex	63				0.143	(1)
Female		40	0.27	0.27		
Male		23	0.37	0.50		
Personality	60				0.227	(2)
Obsessoid		15	0.22	0.22		
Sthenic/high-self-confident		19	0.36	0.46		
Asthenic/low-self-confident		26	0.33	0.37		
Premorbid social interactions	63				0.061	(1)
Tendency to social isolation		13	0.20	0.15		
No tendency to social isolation		50	0.34	0.33		
Broken home situation	63				0.237	(1)
Broken home		22	0.25	0.23		
No broken home		41	0.33	0.33		
Stable heterosexual relationship before onset	63				0.142	(1)
Stable relationship (> 6 months)		40	0.34	0.37		
No stable relationship		23	0.25	0.25		
LE before onset	63				0.409	(1)
LE before first episode		34	0.33	0.31		
No LE before first episode		29	0.27	0.29		
LE during course	63				0.104	(1)
LE during course		50	0.33	0.33		
No LE during whole course		13	0.21	0.17		
Initial episode	63				0.101	(2)
Melancholic		2	0.87	1.17		
Manic		3	0.30	0.22		
Manic-depressive		5	0.54	0.50		
Schizophrenic		9	0.29	0.27		
Schizodepressive		30	0.24	0.26		
Schizomanic		6	0.41	0.49		
Schizomanic-depressive		3	0.20	0.11		
Non characteristic		5	0.43	0.48		
Schizophrenic episode during course	63				0.200	(1)
Schizophrenic episode during course		17	0.38	0.42		
No schizophrenic episode during course		46	0.28	0.28		
Polarity	63				0.011 *	(1)
Unipolar		31	0.23	0.25		
Bipolar		32	0.40	0.48		
Polymorphism	63				0.330	(1)
Monomorphous		19	0.26	0.25		
Polymorphous		44	0.33	0.33		
Productive psychotic symptoms	63				0.367	(2)
Paranoid		18	0.24	0.28		
Hallucinosis		2	0.41	0.58		
Paranoid-hallucinatory		32	0.36	0.40		
Non productive		11	0.25	0.27		

(1) = t-test; (2) = Anova + Duncan test; * = $P < 0.05$

Table 10. AFC (log) – correlation analysis. Schizoaffective disorders ($N = 63$)

Variable	Pearson *r*	Significance *P*
Age at onset	0.1180	0.357
Age at follow-up	−0.2245	0.077

The same factors correlating significantly with the number of episodes were found also to correlate with the AFE, with the sole exception of age at onset. The older the patient at the end of the observation time, and the longer the duration of the illness, the lower the AFE. This was compatible with the findings that the older the patient and the greater the duration of the illness, the longer the inactivity of the illness. Eliminating the interference of the factor inactivity of the illness by introducing the variable AFC, the only clear similarity between AFE and AFC was their relation to polarity: bipolar schizoaffective patients had a significantly higher AFC as well as AFE.

In conclusion, it can be said that the present study shows, in agreement with other studies, especially the Zurich studies by Angst, that the schizoaffective disorders are recurrent, usually polyphasic, whereby the frequency of relapses is higher in bipolar than in unipolar schizoaffectives.

Appendix

Definitions

1. Diagnostic Criteria of Episodes

Schizophrenic Episode

A. At least one of the following during the episode:

1. Delusions of being controlled, thought broadcasting, thought insertion, thought withdrawal.
2. Delusions of persecution or jealousy, somatic, grandiose, religious, nihilistic, or other delusions, if accompanied by at least one of the following:
   a) hallucinations
   b) blunted, flat, or inappropriate affect
   c) catatonic or other grossly disorganized be havior.
3. Auditory hallucinations in which either a voice keeps up a running commentary on the individual's behavior or thoughts, or two or more voices converse with each other, or the patient hears his own thoughts spoken aloud.
4. Auditory hallucinations on several occasions with content of more than one or two words, having no apparent relation to depression or elation.
5. Incoherence, marked loosening of associations, markedly illogical thinking, or marked poverty of speech if associated with at least one of the following:
   a) blunted, flat, or inappropriate affect
   b) delusions or hallucinations
   c) catatonic or other grossly disorganized behavior.

B. Duration: At least 1 week

C. Absence of a melancholic, manic, or manic-melancholic mixed episode – as defined in this paper – during, immediately, before, or immediately after (without free interval) the presence of the symptoms of A.

D. Not due to any organic mental disorder.

Paranoid Episode

A. Persistent persecutory delusions or delusional jealousy or grandiose, religious, nihilistic, or other delusions, but no delusions of A1 of schizophrenia (i.e., no delusions of being controlled, thought broadcasting, thought insertion, or thought withdrawal).

B. Emotion and behavior appropriate to the content of the delusional system.

C. Duration: At least 1 week.

D. None of the symptoms of criterion A of schizophrenia.

E. No prominent hallucinations.

F. Absence of a melancholic, manic, or manic-depressive mixed episode – as defined in this paper – during, immediately before, or immediatelly after (without free interval) the presence of the symptoms of A.

G. Not due to any organic mental disorder.

Melancholic Episode

A. Loss of pleasure in all or almost all activities.

B. Lack of reactivity to usually pleasurable stimuli

C. At least three of the following:

1. Distinct quality of depressed mood, i.e., the depressed mood is perceived as distinctly different from the kind of feeling experienced following the death of a loved one.

2. The depression is regularly worse in the morning.
3. Early morning awakening (significantly earlier than usual).
4. Marked psychomotor retardation or agitation.
5. Significant anorexia or weight loss.
6. Excessive or inappropriate guilt, or excessive or inappropriate feelings of insufficiency.

D. Duration: At least 1 week

E. Absence of the criteria of the schizophrenic, paranoid, manic, or manic-depressive mixed episode, during, immediately before or immediately after (without free interval) the melancholic episode

F. Not due to any organic mental disorder.

Manic Episode

A. One or more distinct periods with a predominantly elevated, expansive, or irritable mood.

B. Duration of at least 1 week (or any duration if hospitalization is necessary), during which, for most of the time, at least three of the following symptoms have persisted (four if the mood is only irritable) and have been present to a significant degree:

1. Increase in activity (either socially, at work, or sexually) or physical restlessness.
2. More talkative than usual or pressure to keep talking.
3. Flight of ideas or subjective experience that thoughts are racing.
4. Inflated self-esteem (grandiosity, which may be delusional).
5. Decreased need for sleep.
6. Distractibility, i.e., attention is too easily drawn to unimportant or irrelevant external stimuli.
7. Excessive involvement in activities that have a high potential for painful consequences which is not recognized, e.g., buying sprees, sexual indiscretions, foolish business investments, reckless driving.

C. Absence of the symptomatological features of the schizophrenic, paranoid, melancholic, or manic-melancholic mixed episode, during, immediately before or immediately after (without free interval) the manic episode.

D. Not due to any organic mental disorder.

Manic-Melancholic Mixed Episode

A. The episode involves the symptomatic picture of both melancholic and manic episode intermixed or alternating without free interval.

B. Not due to any organic mental disorder.

Schizodepressive Episode

A. The episode involves the symptomatic picture of both schizophrenic or paranoid and melancholic episodes intermixed or alternating without free interval.

B. If the symptomatology is a mixture of the symptoms of a paranoid and a melancholic episode the delusions have to be mood-incongruent (i.e., no nihilistic delusions or delusions of guilt or insufficiency or other melancholic delusions).

C. Not due to any organic mental disorder.

Schizomanic Episode

A. The episode involves the symptomatic picture of both schizophrenic or paranoid and manic episode intermixed or alternating without free interval.

B. If the symptomatology is a mixture of the symptoms of a paranoid and a manic episode the delusions have to be mood-incongruent (i.e., no grandiose or other manic delusions).

C. Not due to any organic mental disorder.

Schizomanic-Depressive Mixed Episode

A. The episode involves the symptomatic picture of both schizophrenic or paranoid and manic-depressive mixed episodes intermixed or alternating without free interval.

B. If the symptomatology is a mixture of a paranoid and a manic-depressive mixed episode the delusions have to be mood-incongruent (as in schizodepressive and schizomanic episode).

C. Not due to any organic mental disorder.

Noncharacteristic Episodes

Episodes not fullfilling the criteria of the specific episodes mentioned have been defined as Noncharacteristic.

2. Diagnostic Criteria of Disorder

Schizoaffective Disorder

During the whole course:

A. Presence of at least 1 schizoaffective episode, i.e., schizodepressive, schizomanic, or schizomanic-depressive mixed episode, as defined in this paper.

or

B. If schizophrenic (or paranoid) episodes and affective episodes change from one to another independently of their number, sequence, or proportional representation.

C. If A or B are positive, noncharacteristic episodes can occur within the course. Their presence does not have any influence on the diagnosis.

Pure Schizophrenia

During the whole course:

A. Presence of schizophrenic episodes.

B. Absence of schizoaffective or affective episodes, as defined in this paper.

C. If A and B are positive during the whole course, the presence of paranoid or noncharacteristic episodes does not have any influence on the diagnosis.

Pure Affective Disorder

During the whole course:

A. Presence of affective episodes.

B. Absence of schizoaffective, schizophrenic, or paranoid episodes, as defined in this paper.

C. If A and B are positive, the occurrence of noncharacteristic episodes does not have any influence on the diagnosis.

Pure Paranoid Disorder

During the whole course:

A. Presence of paranoid episodes, as defined in this paper.

B. Absence of schizophrenic, affective, or schizoaffective episodes, as defined in this paper.

C. If A and B are positive, the occurrence of noncharacteristic episodes makes the diagnosis uncertain.

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Received March 10, 1988