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# Prognosis of Periodic Bipolar Manic Depressive and Schizo-Affective Psychoses

## A Comparison of Two Studies

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**Summary.** Aspects of the course of manic depressive and schizo-affective psychoses with high recurrence (the patient must have suffered from at least three episodes) are measured by length of episodes, intervals, and cycles. Differences between two patient samples from Switzerland and Poland, and differences between the two diagnostic groups are analyzed taking into account some independent variables such as sex, marital state, age at onset, precipitation, and symptomatology.

Bipolar and schizo-affective psychoses show similar patterns of course: early onset, high relapse rate, high number of episodes, and short intervals. Compared to schizo-affective psychoses bipolar psychoses tend to have a higher frequency of episodes per year, shorter intervals, and the length of episodes is longer. Multivariate analysis shows very few correlations of independent variables with aspects of the course. On the whole the differences between the diagnostic groups are much smaller than between the two centers.

The Polish and Swiss patient samples differ in course considerably. The patients from Zurich show longer episodes, intervals, and cycles, therefore, the frequency of episodes per year is lower in Zurich. Only a smaller part of the variance can be explained by differences in psychopathology (the Polish patients are more manic and more paranoid).

There remain unexplained qualitative differences between the two centers which show how difficult it is to compare scientific results from different sources.

**Key words:** Transcultural psychiatry – Course – Manic depressive psychoses – Schizo-affective psychoses

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**Zusammenfassung.** Verlaufsaspekte von phasischen bipolaren und schizo-affektiven Psychosen mit mindestens 3 Episoden wurden in bezug auf Länge der Phasen, Intervalle und Zyklen erfaßt. Unterschiede zwischen den beiden Stichproben aus der Schweiz und Polen sowie Unterschiede zwischen den beiden diagnostischen Gruppen bezüglich dieser Verlaufscharakteristika wurden analysiert, unter Berücksichtigung unabhängiger Variablen wie Geschlecht, Zivilstand, Erstmanifestationsalter, phasen-auslösende Faktoren und Symptomatik.

Bipolare und schizo-affektive Psychosen nehmen einen ähnlichen Verlauf: frühe Manifestation, hohe Periodizität, hohe Zahl von Phasen und kurze Intervalle. Im Vergleich zu schizo-affektiven Psychosen jedoch zeigen bipolare eine eher noch stärkere Phasenfrequenz pro Jahr, kürzere Intervalle und längere Episoden. Eine multivariate Analyse (MCA) zeigt sehr wenige Korrelationen der unabhängigen Variablen mit den Verlaufscharakteristika.

Im gesamten sind die Unterschiede zwischen den diagnostischen Gruppen sehr viel kleiner als diejenigen zwischen den Zentren. Die polnischen und schweizerischen Stichproben unterscheiden sich im Verlauf beträchtlich. Die Patienten aus Zürich zeigen längere Phasen, Intervalle und Zyklen und deshalb ist die Phasenfrequenz pro Jahr niedriger. Nur ein kleiner Teil der Varianz kann erklärt werden durch Unterschiede in der Psychopathologie (die polnischen Patienten waren häufiger manisch und paranoid).

Es verbleiben unerklärte qualitative Unterschiede zwischen den beiden Patientenstichproben, was darauf hinweist, wie schwierig es ist, wissenschaftliche Ergebnisse zwischen verschiedenen Ländern zu vergleichen.

**Schlüsselwörter:** Transkulturelle Psychiatrie - Verlauf - Manisch-depressive Psychosen - Schizo-affektive Psychosen

## Introduction

The prognosis of periodic affective and schizo-affective psychoses is of interest, because many of these patients receive long-term medication. The decision for such treatment is often based on periodicity, severity, and length of episodes occurring in the previous history. Therefore, general rules of the course of these disorders are a basis for the interpretation of individual previous histories.

Bipolar manic depressive and schizo-affective psychoses take a very similar course, and it is of interest to characterize differences in their prognosis. Our study is purely clinical and tries to characterize the prognosis by three criteria: intraindividual mean length of episodes, cycles and intervals. These three dependent variables will be correlated with independent variables: sex, age, age at onset, some characteristics of the symptomatology during the first three episodes, and degree of remission.

This study is not only a comparison of two diagnostic groups, but also a transcultural comparison of patients from Poland (Warsaw, Lubliniec), and Switzerland (Zürich). Therefore, it shall deal with two groups of questions; one consider-

**Table 1.** Sample characteristics. Bipolar disorders

| | Zürich | Warsaw | *P* |
|---|---|---|---|
| Patients *n* | 34 | 50 | |
| Sex: males | 17 | 25 | |
| females | 17 | 25 | N.S. |
| Age $\bar{x}$, s | 59.0±15.7 | 43.9±10.5 | 0.001 |
| Length of observation in years | 30.8±12.9 | 17.2± 9.5 | 0.001 |

**Table 2.** Sample characteristics. Schizo-affective disorders

| | Zürich | Warsaw | *P* |
|---|---|---|---|
| Patients *n* | 54 | 50 | |
| Sex: males | 12 | 25 | 0.01 |
| females | 42 | 25 | |
| Age $\bar{x}$, s | 55.9±12.4 | 40.5±11.5 | 0.001 |
| Length of observation in years | 33.2±12.2 | 16.6± 8.4 | 0.001 |

ing the differences between the two centers, and the other dealing with differences between the two diagnostic groups.

## Samples

*Warsaw Sample:* The sample from Warsaw was carefully studied within the framework of a medical thesis by M. Rzewuska (1979) which is published in Polish. It consists of randomly selected groups of 50 bipolar manic depressives, and 50 schizo-affective psychoses, equally comprised of males and females, and all of them being hospitalized at least once for a manic episode, and having suffered from at least three episodes within 5 years. The patients were treated during the years 1968 to 1977 in the catchment areas of the Psychiatric Hospital in Lubliniec, and the hospitals of the Psychoneurological Institute Warsaw, respectively.

*Zürich Sample:* From Zürich 88 patients (36%) were selected according to the Polish criteria from a sample of 245 patients whose course and genetics were described previously (Angst 1980; Angst et al. 1980). The patients were admitted to the Psychiatric University Hospital in Zürich during 5 years (1959–1963). The sample has been investigated thoroughly over the last 20 years by follow-up investigations until 1981. Although the hospital has its own catchment area, the severe cases are over-represented, because there are some private hospitals which admit milder cases.

There is one difference between the two samples. All patients from Poland were hospitalized at least once for mania, the patients from Zürich were hospitalized for both affective syndromes, mania and/or depression. Therefore, the Polish material is more manic, this will be discussed later (see Table 5).

Tables 1 and 2 describe the bipolar and schizo-affective samples from Zürich and Warsaw. There are some differences in size of the samples (bipolar illness) and in sex distribution (schizo-affective disorders). The sex ratio of the Zürich material is representative, the ratio of the Warsaw material artificial. The two samples also differ in age and length of observation since the onset of the disorder. These differences are due to the differences in selection periods. In Zürich the patients were selected during 1959 to 1963, in Warsaw from 1968 to 1977.

## Methodology

The Polish and Swiss studies were carried out independently, but the clinical methods were fortunately similar. Only hospitalized patients were studied. For both places the data can be dichotomized into retrospective and prospective data. The prospective period is longer in Zürich, because the study was started earlier. The definition of characteristics of the course, for instance episodes, cycles, was originally transferred from the Swiss to the Polish study. The same is true for the documentation. These facts alleviate a more detailed comparison and the organization of the data on tape. Data processing was performed in the research department, Psychiatric University Hospital which was linked with an IBM 3033 computer at the Institute of DATA-Processing, University of Zürich. As statistical procedures we used $\chi^2$-tests, $t$-tests, and multivariate approaches like multiple classification analysis (MCA) of the program package SPSS, and the AID-analysis of the package OSIRIS.

## Results

Table 3 describes some aspects of the course of bipolar and schizo-affective psychoses broken down by the two centers. It deals with age at onset, length of the illness, total number of episodes observed, frequency of episodes, length of episodes, cycles and intervals, and length of the last free interval observed.

*1. Age at Onset.* The age at onset varies between the four groups within a range of 25 to 32 years. The differences are statistically not significant. The median for bipolar psychoses is the same in Zürich and in Warsaw (27 years). The median for the age at onset of schizo-affective psychoses in Zürich is 24 years, in Warsaw 21 years. The medians reflect a certain difference between the two diagnostic groups showing a non-significant trend to an earlier manifestation of schizo-affective than bipolar psychoses.

*2. Length of the Illness.* We define length of the illness as the time between the age at onset and the end of the last episode, which had to be finished. Therefore, these figures depend directly on the length of the follow-up which differs between Zürich and Warsaw; so it follows that the length of illness found in Zürich is on the average 13 years longer than in Warsaw. The "length of the illness" defined in such a way is uninteresting, but it is the basis for the calculation of the frequency of episodes.

*3. Number, Frequency and Symptomatology of Episodes.* As number of episodes we describe the total individual number of episodes observed, as frequency of episodes we calculate the average number of episodes per year. The total number of episodes is amazingly identical for both centers, in the case of bipolar psychoses 10 episodes, and for schizo-affective psychoses 9 episodes. But we have to consider that these values are based on totally different lengths of observation. Therefore, calculating the frequency of episodes we find considerable differences. In the Warsaw material the frequency of episodes is higher than in Zürich. In Zürich we find 0.4 episodes per year, in Warsaw 0.6 episodes. The figures are the same for the two diagnostic groups. It is an unexpected finding that the Polish patients show 50% more periodicity than those from Zürich.

The explanation of this finding is very difficult. One hypothesis is based on differences in frequency of medical consultations and observations, because in

**Table 3.** Course

| | | Bipolar disorders | | | Schizo-affective disorders | | |
|---|---|---|---|---|---|---|---|
| *n* | | Zürich 34 | Warsaw 50 | *P* | Zürich 54 | Warsaw 50 | *P* |
| Age at onset | $\bar{x}$, s | 31.8±13.4 | 27.4± 8.5 | N.S. | 28.2±10.4 | 24.8± 8.8 | N.S. |
| | median | 27 | 27 | | 24 | 21 | |
| Length of illness in years | $\bar{x}$, s | 28.4±13.7 | 16.6± 9.6 | 0.001 | 28.3±12.5 | 15.8± 8.4 | 0.001 |
| Total number of episodes | $\bar{x}$, s | 12.1± 9.3 | 10.1± 4.8 | N.S. | 10.5± 5.6 | 9.2± 3.9 | N.S. |
| | median | 10 | 10 | | 9 | 9 | |
| Frequency of episodes/year | | 0.42 | 0.60 | | 0.37 | 0.58 | |
| Length of episodes | $\bar{x}$, s | 5.2± 1.9 | 3.4± 1.4 | 0.005 | 4.6± 1.7 | 3.3± 1.4 | 0.001 |
| | median | 5.4 | 3.6 | | 4.2 | 3.4 | |
| Length of intervals in months | $\bar{x}$, s | 28.4± 1.9 | 17.9±1.9 | 0.005 | 32.9± 1.6 | 18.4± 1.8 | 0.001 |
| | median | 25.7 | 16.8 | | 30.7 | 17.2 | |
| Length of cycles in months | $\bar{x}$, s | 34.9± 1.8 | 19.7± 1.7 | 0.001 | 40.7± 1.6 | 20.8± 1.6 | 0.001 |
| | median | 35.6 | 17.8 | | 36.5 | 21.1 | |
| Last free interval in months | $\bar{x}$, s | 28.7±50.0 | 7.6±10.8 | 0.05 | 59.5±58.3 | 10.5±13.3 | 0.001 |
| | median | 3.0 | 3.0 | | 42.0 | 5.0 | |

**Table 4.** Therapy of episodes of bipolar disorders (BP) and schizo-affective disorders (SA)

| | Zürich (ZH) | | | | Warsaw (WA) | | | |
|---|---|---|---|---|---|---|---|---|
| | BP | SA | Total | % | BP | SA | Total | % |
| No treatment | 48 | 23 | 71 | 7.7 | 19 | 15 | 34 | 3.3 |
| Ambulatory | 98 | 64 | 162 | 17.6 | 45 | 21 | 66 | 6.4 |
| Hospitalized | 248 | 420 | 668 | 72.6 | 504 | 425 | 929 | 90.3 |
| Unknown | 19 | | 19 | 2.1 | | | | |
| Total | 413 | 507 | 920 | | 568 | 461 | 1029 | |

| | | | $\chi^2$ | $P$ |
|---|---|---|---|---|
| *Statistics:* | BP-ZH | versus SA-ZH | 46.7900 | 0.001 |
| | BP-WA | versus SA-WA | 4.8419 | N.S. |
| | BP-ZH | versus BP-WA | 90.8446 | 0.001 |
| | SA-ZH | versus SA-WA | 21.3290 | 0.001 |
| | BP | versus SA | 68.9482 | 0.001 |
| | Total ZH | versus total WA | 88.0128 | 0.001 |

**Table 5.** Bipolar disorders. Manic syndromes in percentage

| % mania | Zürich | | Warsaw | |
|---|---|---|---|---|
| | Patients | Expected values | Patients | Expected values |
| 1–19 | 4 | (1.6) | – | (2.4) |
| 20–39 | 7 | (5.3) | 6 | (7.7) |
| 40–59 | 10 | (10.1) | 15 | (14.9) |
| 60–79 | 6 | (10.9) | 21 | (16.1) |
| ≧80 | 7 | (6.1) | 8 | (8.9) |

$\chi^2 = 13.470$; $P < 0.05$

Poland a continuous treatment or control after the first manifestation is the rule. If this hypothesis were true, the Polish material should contain a higher number of milder episodes not requiring hospitalization which would have been overlooked in Zürich. In order to test this hypothesis we counted the frequency of non-hospitalized episodes (Table 4).

In fact there are significant differences, but against the hypothesis. There is a higher rate of hospitalizations in the Polish material which may be interpreted as a higher severity of the disorders also explaining the higher periodicity.

A second hypothesis is based on differences in symptomatology assuming that a higher proportion of mania increases periodicity. In Table 5 we classified the patients taking into account the individual ratio of manic symptomatology. In each case we divided the sum of manic syndromes during the course of the illness by the total number of all syndromes observed following formula 1. The same procedure was followed for the computation of the percentage of paranoid symptomatology (formula 2).

Formula 1 $$E_M = \frac{N_M}{N_D + N_M}$$

Formula 2 $$E_P = \frac{N_P}{N_D + N_M + N_P}$$

$E_M$ = Relative Frequency of Depressive Episodes
$E_P$ = Relative Frequency of Paranoid Episodes
$N_D$ = Number of Depressive Episodes
$N_M$ = Number of Manic Episodes
$N_P$ = Number of Paranoid Episodes.

Table 5 shows that bipolar patients from Zürich are less manic than those from Warsaw ($P < 0.05$). The schizo-affective patients from both countries do not differ in this respect, but schizo-affective patients from Zürich are less paranoid than the Polish patients ($P < 0.01$, see Table 6). These differences will be taken into account comparing the two groups by multivariate methods (in section 5).

**Table 6.** Schizo-affective disorders. Paranoid syndromes in percentage

| % paranoid | Zürich | | Warsaw | |
|---|---|---|---|---|
| | Patients | Expected values | Patients | Expected values |
| 0– 9 | 11 | (6.8) | 2 | (6.3) |
| 10–29 | 26 | (22.8) | 18 | (21.2) |
| 30–49 | 15 | (19.2) | 22 | (17.8) |
| ≧50 | 2 | (5.2) | 8 | (4.8) |

$\chi^2 = 13.494$; $P < 0.01$

*4. Length of Episodes.* The length of episodes of a total diagnostic group is defined as the average of all intraindividual mean values. The computation of intra-individual mean values is necessary, because there are patients with fewer and others with many episodes. In this way we can compensate for the patients with many episodes. The values are lognormally distributed, and the means are given in Table 3. Again we see marked differences between the results of the two centers which is also illustrated by the median. The median for the length of episode for bipolar psychoses in Zürich is 5.4 months, in Warsaw 3.6 months, for schizo-affective psychoses in Zürich 4.2 months, in Warsaw 3.4 months. Therefore, independent of diagnoses, the length of episodes is longer in Zürich.

On the other hand there are no differences between the two disorders broken down by centers. Combining the two centers we find an identical mean length of episodes for bipolar and schizo-affective illness (median 4.0 months).

The differences between the two centers could possibly be that the practice of hospitalization differs. Perhaps in Poland patients are treated over a longer period as out-patients, and therefore, more severe cases would be hospitalized. On the other hand this would not be a plausible explanation for a shorter length of episodes in the Polish material. A more plausible explanation is based on the differences of periodicity described in section 3 showing a higher recurrence rate in the Polish material. It could be that a higher recurrency is connected with a shorter length of episodes. As mentioned in the previous section there may be a difference in intensity of observation. But a more regular control in Poland would not reveal shorter but longer episodes.

Another explanation for differences could be looked for in treatment, but it is apparent that in both centers drug treatment and rehabilitation have priority. ECT was not given to the Polish patients and very rarely to the Swiss patients. Differences in treatment probably exist after discharge from hospital. The end of the episode was determined in Poland as the time when a relatively low dose of psychotropic drugs was given and symptoms were no longer observed. It cannot of course be determined with certainty that the episode really was finished or not, or whether the symptoms were only suppressed by the treatment and would reoccur after cessation of treatment. On the whole we find no plausible explanation for the differences in length of episodes between the two centers except for the factor "periodicity".

**Table 7.** Bipolar disorders. Distribution of independent variables

| Predictor | Category | Zürich[a] | Warsaw | *P* |
|---|---|---|---|---|
| Sex | Males | 15 | 25 | N.S. |
| | Females | 16 | 25 | |
| Marital state | Married | 11 | 30 | N.S. |
| | Others | 20 | 20 | |
| Professional education | Unqualified | 11 | 11 | |
| | Qualified | 12 | 15 | N.S. |
| | Highly qualified | 8 | 19 | |
| Age at onset | ≦20 | 6 | 16 | |
| | 21–29 | 12 | 15 | N.S. |
| | >30 | 13 | 19 | |
| Number of episodes | < 6 | 7 | 13 | |
| | 7– 9 | 11 | 17 | N.S. |
| | ≧10 | 13 | 21 | |
| Precipitation | None | 20 | 29 | N.S. |
| | Present | 11 | 21 | |
| Symptomatology during the first three episodes | M → M, D | 4 | 15 | |
| | MD | 8 | 6 | N.S. |
| | D → M, MD | 11 | 23 | |
| | D → D | 9 | 6 | |
| % mania | ≦75 | 11 | 11 | |
| | 76–89 | 12 | 27 | N.S. |
| | ≧90 | 8 | 12 | |
| Symptomatology during 3rd interval | None | 21 | 41 | |
| | Affective | 7 | 6 | N.S. |
| | Disturbed contact | 3 | 3 | |
| % hospitalization | ≦ 75 | 14 | 20 | |
| | 76– 90 | 8 | 8 | N.S. |
| | 91–100 | 9 | 22 | |

[a] Three of 34 cases were excluded because of missing data

*5. Length of Cycles.* As previously mentioned it is difficult to assess the end of an episode, and therefore, the beginning of an interval. For this reason some of our calculations are based on length of cycles defining the cycle as episode plus subsequent interval. The cycle length is, as the length of episodes, lognormally distributed and again we have computed the average for the diagnostic group based on intraindividual mean values. We find marked differences between the two centers, and minor differences between the two diagnoses. The length of cycles observed in Zürich is 15–20 months longer than in Warsaw. On the other hand the median of cycle length of the two disorders does not differ within each center: in Zürich both bipolar and schizo-affective cycles last 36 months, in

Warsaw, bipolar psychoses 18 months, schizo-affective psychoses last 21 months. In this case we also have to accept that both disorders run a very similar course, and that unexplained differences between the two centers exist.

Because episodes and cycles in Zürich were longer than in Warsaw the same must be true for the interval which is illustrated in Table 3.

## The Length of Episodes, Cycles and Intervals – A Multivariate Analysis

In the previous section we compared some characteristics of the course of endogenous psychoses and found independent of diagnoses (bipolar or schizo-affective psychoses) an unexplained difference between the Swiss and the Polish samples: episodes, cycles and intervals were much longer in Zürich than in Warsaw. For this reason it seems to be more promissing to explain the differences by variables which are independent of diagnosis and which would influence the course of psychoses in a nonspecific way. Apart from illness-related factors we have also to consider sampling differences, and socio-cultural factors which were not taken into account. The following analysis tries to check the influence of a number of independent variables in an explorative way by multivariate analyses. As dependent variables length of episodes, cycles and intervals will be analyzed separately. Statistically we use multiple classification analyses (MCA) of SPSS, and AID-analyses of OSIRIS-program packages. The independent variables taken into account are listed in Tables 7 and 8 and their quantification and frequencies are given for both categories, diagnoses and hospitals. The variables are: sex, marital state, occupation, age at onset, total number of episodes, pattern of syndromes during the first three episodes, manic and paranoid syndromes, and symptomatology during the third interval, furthermore, precipitating factors prior to the first episode. The two bipolar samples do not differ in any of the variables. Schizo-affective patients from Poland show a significantly higher professional education. Furthermore the Polish patients are more paranoid and suffer less from symptoms during the third interval. The results of the MCA-analyses taking into account all independent variables are given in Tables 9 and 10.

*Length of Episodes.* In bipolar and schizo-affective psychoses 36% and 28% respectively of the variance is explained by the analysis. Based on the $\beta$-coefficients the variable "hospital" (Zürich or Warsaw) has the highest weight among bipolar psychoses. Among schizo-affective psychoses it is the number of episodes and the percentage of paranoid symptomatology that outweigh the hospital differences. It is surprising that there is a negative correlation between paranoid symptomatology and length of episodes. It means that the more paranoid the patient is over several episodes, the shorter is the length of the episode. The other finding that a higher frequency of episodes is more or less correlated with a shorter length is less surprising. Psychoses with higher periodicity probably have in general shorter episodes. In an analysis of the bipolar sample in Zürich this correlation is significant too.

**Table 8.** Schizo-affective disorders. Distribution of independent variables

| Predictor | Category | Zürich | Warsaw | *P* |
|---|---|---|---|---|
| Sex | Males | 12 | 25 | 0.01 |
| | Females | 42 | 25 | |
| Marital state | Married | 16 | 16 | N.S. |
| | Others | 38 | 34 | |
| Professional occupation | Unqualified | 21 | 7 | |
| | Qualified | 26 | 16 | 0.001 |
| | Highly qualified | 7 | 27 | |
| Age of onset | ≦20 | 15 | 23 | |
| | 21–30 | 20 | 13 | N.S. |
| | >30 | 19 | 14 | |
| Total number of episodes | ≦ 6 | 16 | 15 | |
| | 7–10 | 16 | 19 | N.S. |
| | >10 | 22 | 16 | |
| Precipitating factors | None | 38 | 28 | N.S. |
| | Present | 16 | 22 | |
| Symptomatology during the first three episodes | Affective | 12 | 8 | |
| | Mixed | 26 | 18 | N.S. |
| | Paranoid | 16 | 24 | |
| % mania | ≦75 | 16 | 9 | |
| | 76–89 | 20 | 23 | N.S. |
| | ≧90 | 18 | 18 | |
| % paranoid | ≦20 | 22 | 7 | |
| | 21–39 | 26 | 30 | 0.01 |
| | ≧40 | 6 | 13 | |
| Symptomatology during 3rd interval | None | 17 | 30 | |
| | Affective | 28 | 8 | 0.001 |
| | Disturbed contact | 9 | 12 | |
| % hospitalization | <75 | 13 | 8 | |
| | 76–90 | 7 | 4 | N.S. |
| | >90 | 34 | 38 | |

*Length of Interval.* In bipolar and schizo-affective psychoses 47% and 41% respectively of the variance is explained by the MCA-analysis. Independent of diagnoses the number of episodes and the variable "hospital" are most influential. A higher number of episodes correlates, of course, with shorter intervals. Among bipolar psychoses shorter intervals correlate with mania in percentages, which is not surprising.

In summary our attempt to explain the differences between the hospitals taking into account other independent variables has not been successful. Nevertheless there remain some additional findings which are less definite, but should be mentioned.

**Table 9.** Bipolar disorders. Multiple classification analysis (MCA)

| | | Length of episodes | | | | | Length of intervals | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| $\bar{x}$, SD (LN) | | 1.4214±0.5455 | | | | | 3.0507±0.6985 | | | | |
| $R^2$ | | 0.36 | | | | | 0.47 | | | | |
| Predictor | Category | A | $\eta$ | B | $\beta$ | $P$ | A | $\eta$ | B | $\beta$ | $P$ |
| Hospital | Zürich | 0.31 | | 0.34 | | | 0.26 | | 0.29 | | |
| | Warsaw | −0.19 | | −0.21 | | | −0.16 | | −0.18 | | |
| | | | 0.45 | | 0.50 | 0.01 | | 0.30 | | 0.32 | 0.01 |
| Number of episodes | < 7 | | | | | | 0.51 | | 0.48 | | |
| | 7–10 | | N.S. | | | | −0.02 | | 0.03 | | |
| | >10 | | | | | | −0.17 | | −0.32 | | |
| | | | | | | | | 0.42 | | 0.46 | 0.01 |
| % mania | <75 | | | | | | 0.23 | | 0.28 | | |
| | 76–90 | | N.S. | | | | −0.15 | | −0.12 | | |
| | >90 | | | | | | 0.03 | | −0.07 | | |
| | | | | | | | | 0.23 | | 0.24 | 0.05 |
| Sex | | | N.S. | | | | | N.S. | | | |
| Marital state | | | N.S. | | | | | N.S. | | | |
| Education | | | N.S. | | | | | N.S. | | | |
| Age at onset | | | N.S. | | | | | N.S. | | | |
| Precipitation | | | N.S. | | | | | N.S. | | | |
| Symptomatology during the first three episodes | | | N.S. | | | | | N.S. | | | |
| Symptomatology during 3rd interval | | | N.S. | | | | | N.S. | | | |
| % hospitalization | | | N.S. | | | | | N.S. | | | |

A = Unadjusted deviation from grand mean ($\bar{x}$)
B = Coefficient
$R^2$ = Proportion of variation explained by fitted model

**Table 10.** Schizo-affective disorders. Multiple classification analysis (MCA)

| | | Length of episodes | | | | | Length of intervals | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| $\bar{x}$, SD (LN) | | 1.3650±0.5210 | | | | | 3.2162±0.6421 | | | | |
| $R^2$ | | 0.28 | | | | | 0.41 | | | | |
| Predictor | Category | A | $\eta$ | B | $\beta$ | $P$ | A | $\eta$ | B | $\beta$ | $P$ |
| Hospital | Zürich | 0.16 | | 0.09 | | | 0.27 | | 0.28 | | |
| | Warsaw | −0.17 | | −0.10 | | | −0.30 | | −0.30 | | |
| | | | 0.32 | | 0.18 | 0.05 | | 0.45 | | 0.46 | 0.01 |
| Number of episodes | < 7 | 0.17 | | 0.21 | | | 0.28 | | 0.27 | | |
| | 7–10 | −0.06 | | −0.06 | | | 0.01 | | 0.04 | | |
| | >10 | −0.08 | | −0.11 | | | −0.24 | | −0.26 | | |
| | | | 0.22 | | 0.26 | 0.05 | | 0.33 | | 0.35 | 0.01 |
| % paranoid | ≦20 | 0.25 | | 0.21 | | | | | | | |
| | 21–39 | −0.08 | | −0.05 | | | | N.S. | | | |
| | ≧40 | −0.14 | | −0.16 | | | | | | | |
| | | | 0.30 | | 0.26 | 0.05 | | | | | |
| Sex | | | N.S. | | | | | N.S. | | | |
| Marital state | | | N.S. | | | | | N.S. | | | |
| Education | | | N.S. | | | | | N.S. | | | |
| Age at onset | | | N.S. | | | | | N.S. | | | |
| Precipitation | | | N.S. | | | | | N.S. | | | |
| Symptomatology during the three first episodes | | | N.S. | | | | | N.S. | | | |
| % mania | | | N.S. | | | | | N.S. | | | |
| Symptomatology during 3rd interval | | | N.S. | | | | | N.S. | | | |
| % hospitalization | | | N.S. | | | | | N.S. | | | |

A = Unadjusted deviation from grand mean ($\bar{x}$)
B = Coefficient
$R^2$ = Proportion of variation explained by fitted model

The bipolar patients of the two hospitals differ in their manic symptomatology as previously shown in Table 5. The patients of Zürich suffered relatively less from mania and more from depression than the patients from Poland. The Zürich sample, analyzed separately by the MCA, shows that with increasing proportion of mania the length of episodes becomes shorter ($P<0.01$). The Warsaw material does not show a similar trend, but it must be remembered that bipolar patients from Warsaw are much more homogeneous and do not vary enough to exclude a possible relation.

A further contributing factor to the differences between the hospitals (Table 6) is the effect of affective and mixed affective-paranoid syndromes correlating with longer episodes among schizo-affective psychoses (AID-analysis). This finding confirms an earlier observation showing that paranoid schizophrenic episodes were on average shorter than mixed paranoid-affective episodes (Angst et al. 1970).

A finding which was not reproducible for both hospitals concerns the implication of precipitating life-events dependent on sex. Based on the AID-analysis of the Warsaw material among schizo-affective women intervals and cycles after precipitated episodes were longer. Males did not follow this rule. It could be possible that women may be more sensitive to environmental factors as mentioned by Bleuler (1972). On the other hand there is no difference in the frequency of precipitation of the first episode between males and females. In addition females from Warsaw showed in general a trend to a more favourable course of the illness measured by the length of the intervals and cycles of schizo-affective psychoses. The findings may be sample-dependent but should at least be mentioned.

## Conclusions

The study tries to compare both the course of the different diagnostic groups and the results from culturally different countries. Based on the Polish study we selected in Zürich a comparative subsample of bipolar and schizo-affective psychoses with a marked periodicity. Including the index admission, the patients must have suffered from at least three episodes within 5 years. This subsample represents a little more than 1/3 of bipolar and schizo-affective psychoses collected without selection from subsequent hospital admissions in Zürich. Therefore, the results obtained are valid for psychoses of high recurrency only.

*A comparison of the two diagnoses, bipolar and schizo-affective psychoses,* shows a very similar pattern of the course as described earlier (Angst 1980). Both have an early onset and a high relapse rate (median 9 to 10 episodes, and on average an episode every second or third year). Multivariate analysis shows further common rules for both diagnoses. A higher number of episodes correlates with shorter intervals and cycles.

The results of the two centers show some differences between bipolar and schizo-affective disorders. Bipolar psychoses have a trend towards a later onset than schizo-affective psychoses and also show a higher frequency of episodes per year, and therefore, shorter intervals and cycles. Episodes of bipolar illness are longer than those of schizo-affective disorders.

Multivariate analysis reveals that a number of variables do not influence the course in the sense of length of episodes, intervals and cycles: sex, marital state, professional education, precipitation of the first episode, symptomatology during the first three episodes, symptomatology during the third interval.

In addition there are some less firmly established findings which may be sample-dependent: preponderantly manic bipolar patients have shorter intervals. Among schizo-affective patients the more paranoid ones have shorter episodes. Finally it would make some sense that among schizo-affective female patients intervals and cycles tend to be longer if they follow an episode which has been precipitated by life-events.

The comparison of the two studies has revealed many differences which are not explained by diagnoses, but by differences between the two centers or samples. The Polish patients were observed regularly every month after the index hospitalization, whereas the patients from Zürich were only followed-up every 5th year, but over a longer period of time than in Warsaw. The main differences between the two centers independent of diagnoses consist of longer episodes, intervals and cycles in Zürich than in Warsaw. Therefore the frequency of episodes per year is also lower in Zürich. In order to explain these differences several factors have been taken into account by means of bivariate and multivariate procedures. Two aspects of some importance eventually emerged: severity and psychopathology. By severity we mean the percentage of episodes which required hospitalization. In this sense the Polish patients were significantly more ill; 90% of the episodes required hospitalization, whereas in Zürich only 73%. A higher severity of the Polish material would be compatible with longer episodes and shorter intervals, but we find shorter episodes and intervals than in Zürich. Therefore, severity cannot explain the findings, and statistically is not correlated with the length of episodes or intervals (Tables 9 and 10). The two samples also differ in psychopathology. Although the Polish patients are more manic and more paranoid these facts do not explain the differences between the two centers. More mania correlates with longer episodes (against the hypothesis), and only a more paranoid symptomatology partially explains why the episodes observed in Poland were longer. Despite all attempts by multivariate analyses there remain qualitative differences between the two centers which cannot be explained.

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