What Is Schizophrenic in Acute and Transient Psychotic Disorder?

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Abstract

Acute and transient psychotic disorder (ATPD) is supposed to differ from schizophrenia, but little research has been done on the subject. In a prospective longitudinal case control study we compared all inpatients with ATPD (ICD–10 F23) treated at Halle University Hospital during a 5-year period with matched controls with "positive" schizophrenia (PS) and with mentally healthy controls. Followup investigations were performed at a mean of 2.2 years after the index episode or 8.2 years after the first episode. Female preponderance in ATPD was marked (78.6%). ATPD and PS patients were similar to each other (but different from healthy controls) in the prevalence of a "broken home" situation and a family history for mental disorders. Compared with PS patients, ATPD patients showed better premorbid social adaptation, and they more often displayed rapidly changing symptoms in the index episode and a negative life event preceding the episode. Despite comparable relapse rates, at followup ATPD patients showed better social adaptation, less psychological impairment, and better global functioning than PS patients. These data support the delineation of ATPD from schizophrenia.

Keywords: Acute and transient psychotic disorder, brief psychoses, schizophrenia, followup, outcome, gender, life events.

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From the very beginning of the dichotomy of psychotic disorders into dementia praecox (later schizophrenia) and manic-depressive insanity (later affective disorder), it was noted that some psychotic disorders could not be allocated to either category. Some "national" concepts (e.g., cycloid psychosis in Germany, bouffée délirante in France, psychogenic or reactive psychosis in Scandinavia, good prognosis schizophrenia or remitting schizophrenia in the United States, or atypical psychosis in Japan) took account of this fact (see contributions in Marneros and Tsuang 1986; Pillmann and Marneros, in press). Large multinational studies conducted by the World Health Organization (WHO), such as the International Pilot Study of Schizophrenia (WHO 1979), yielded further evidence for the inhomogeneity of nonorganic and nonaffective psychotic disorders. The efforts to identify such "atypical schizophrenic" psychotic disorders led to the creation of the category of acute and transient psychotic disorder (ATPD) by the WHO (F23 of ICD–10), but ATPD remains undefined. The WHO itself points out that the present state of knowledge does not allow the reliable definition of this group and its subgroups. There is no systematic clinical knowledge and no reliable multiaxial system for their allocation to diagnostic categories. Evidently, more research on the topic is necessary (WHO 1992). One of the most interesting unresolved issues is the relationship between ATPD and schizophrenia: How are they similar, and how do they differ?

Since the introduction of ATPD as a diagnostic category, one Scandinavian study has reported on the clinical characteristics and 1-year followup of a cohort of ATPD patients (Jørgensen et al. 1996, 1997). The authors reported high comorbidity with personality disorder and frequent diagnostic change at followup. A study from India reported on diagnostic stability over 3 years of acute polymorphic psychotic disorders (Sajith et al. 2002). However, neither investigation used a control group.

To evaluate clinical features, course, and outcome of ATPD, we carried out a longitudinal, prospective, and comparative investigation on an unselected cohort of inpatients with ATPD. Data on a subgroup with cycloid psychosis, data on the concordance of ATPD with *DSM–IV* brief psychotic disorder, and a comparison of ATPD with schizoaffective disorders have been reported separately (Pillmann et al. 2001, 2002; Marneros et al. 2002*a*). This article focuses on the differences between ATPD patients and matched controls with ICD–10 schizophrenia.

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Methods

In the first phase of a prospective followup study, we identified all consecutive cases fulfilling the ICD–10 criteria of ATPD (F23) treated as inpatients at the Department of Psychiatry and Psychotherapy at Martin Luther University Halle-Wittenberg, Germany, during a 5-year period from 1993 to 1997. We ascertained index diagnoses in a two-stage fashion. Patients with a clinical discharge diagnosis of ATPD were considered for inclusion in the study. All diagnoses were reviewed by two experienced research psychiatrists (F.P. and A.H.) on the basis of a checklist incorporating ICD–10 research criteria. Consensus was reached on each patient. Only subjects in whom a diagnosis of ATPD was confirmed were included in the study. In total, we found 42 cases of ATPD. They represented 4.1 percent of all 1036 patients treated for nonorganic psychotic and nonorganic major affective disorders (F2 or F3 in ICD–10) during the recruiting period, or 8.5 percent of all nonorganic psychotic disorders—that is, disorders that fulfill the criteria of schizophrenia, schizoaffective, or other nonorganic psychotic disorder (F2 of ICD–10) (table 1).

Control Groups. We also recruited two control groups: (1) patients with an acute episode of "positive" schizophrenia (PS), and (2) a surgical control group without mental disorder. A comparison with bipolar schizoaffective disorder has been reported separately (Marneros et al. 2002*a*). The primary intention of the present study is to identify clinical and prognostic differences between ATPD and schizophrenia. Clearly, the variables of interest are also influenced by demographic parameters. For instance, in schizophrenia the prognosis is more favorable for females than for males (Leung and Chue 2000). Any study on a subgroup with a high rate of female subjects might therefore find a favorable prognosis simply on the basis of the demographic structure of the sample. Age is also associated with outcome parameters (Harrison et al. 1996; Davidson and McGlashan 1997). Therefore, to avoid spurious differences, we chose a case control design, in which the control groups were matched for gender and age with the index patients. Furthermore, to avoid confounding by preexisting chronicity, for the schizophrenia control group only patients with an episode of PS were selected. PS was defined as an acute episode of schizophrenia with positive symptoms such as hallucinations or delusions (F20.0, F20.2, F20.3); patients with chronic schizophrenia or residual schizophrenia (F20.5) were excluded. The procedures described above resulted in a control group that is not representative for patients with schizophrenia in general. However, the design of the study ensures that any differences are not simply due to demographic bias or preexisting chronicity.

All patients and probands (n = 126) were investigated and interviewed by the authors themselves (four psychiatrists and a clinical psychologist). For all groups we systematically recorded demographic, sociobiological, and clinical features. All available information was used, including data from a semistructured interview, data from hospital charts, and—with the patient's consent—data from informants such as family members. For the evaluation of psychopathological parameters during the index episode, a symptom list derived from the Association for Methodology and Documentation in Psychiatry (AMDP) system was used. All items were rated as "present" or "absent." The present article compares subjects with ATPD, controls with PS, and controls without mental disorder. Basic data for index patients and control groups are given in table 2.

Followup. In the second phase of the study, we undertook followup examinations of all living and consenting

Table 1. Principal diagnoses in the unmatched sample of 495 patients with nonorganic psychotic disorders

Diagnosis	*n*	%
Paranoid schizophrenia (F20.0)	188	38.0
Hebephrenic schizophrenia (F20.1)	19	3.8
Catatonic schizophrenia (F20.2)	7	1.4
Undifferentiated schizophrenia (F20.3)	14	2.8
Residual schizophrenia (F20.5)	23	4.6
Acute and transient psychotic disorder (F23)	42	8.5
Schizoaffective disorder (F25)[1]	175	35.4
Other psychotic disorders[2]	27	5.5

[1] Including sequential forms of schizoaffective disorder (see Marneros et al. 1989).

[2] Including simple schizophrenia (F20.6) and residual categories

Table 2. Characteristics of the samples

Characteristic	Acute and transient psychotic disorders	Positive schizophrenia	No mental disorder	Analysis		
				χ^2, F or *t*	*df*	*p*
Age at first episode (yrs) (*n* = 42 for all groups)						
Mean (SD)	35.8 (11.1)	35.3 (13.9)		*t* = 0.168	82	0.867
Range	18.7–70.1	16.3–73.1				
No. of previous episodes (*n* = 42 for all groups)						
Mean (SD)	1.6 (3.0)	1.8 (2.0)		*t* = –0.339	82	0.736
Range	0–16	0–7				
Age at index admission (yrs) (*n* = 42 for all groups)[1]						
Mean (SD)	41.2 (12.5)	41.1 (12.4)				
Range	18.7–73.2	19.5–74.1				
Index episode = first episode (*n*, %) (*n* = 42 for all groups)	23 (54.8)	16 (38.1)		χ^2 = 2.345	1	0.162
Age at followup (yrs) (*n* = 38 for all groups except no mental disorder, where *n* = 42)						
Mean (SD)	42.6 (12.5)	43.3 (12.1)	42.8 (12.8)	F = 0.023	2,115	0.997
Range	20.6–74.6	23.1–77.9	17.6–72.6			
Time from first episode to followup (yrs) (*n* = 38 for all groups except no mental disorder, where *n* = 42)						
Mean (SD)	8.2 (8.3)	8.9 (7.4)		*t* = –0.439	74	0.662
Range	0.6–30.5	0.8–23.5				
Time from index episode to followup (yrs) (*n* = 38 for all groups except no mental disorder, where *n* = 42)						
Mean (SD)	2.2 (1.3)	2.8 (1.3)		*t* = –2.007	74	0.048
Range	0.6–5.1	0.8–5.0				

Note.—SD = standard deviation.

[1] Subjects have been matched with regard to this variable.

patients at a mean of more than 8 years after the first episode and more than 2 years after the index episode. Followup data in table 2 show that subjects did not differ in age at followup and in time from first episode to followup, but time from index episode to followup was slightly higher in PS than in ATPD patients. At the time of followup, 1 of the ATPD patients had died, 3 refused consent, and the remaining 38 subjects were personally interviewed. In the control group with PS, one patient had died of carcinoma, one had committed suicide, two refused consent, and for one subject only detailed information from an informant (legal guardian) was available. The remaining 37 subjects were personally interviewed.

The instruments used were the WHO Schedules for Clinical Assessment in Neuropsychiatry (WHO–SCAN) (van Gülick-Bailer et al. 1995), the WHO Psychological Impairments Rating Scale (WHO–PIRS) (Biehl et al. 1989*a*), and the WHO Disability Assessment Schedule (WHO–DAS) (Jung et al. 1989), all in their German translations, as well as a semistructured interview for the evaluation

of sociobiographical features already used in earlier studies. Past episodes of illness with in- or outpatient treatment were recorded. We defined an episode as the occurrence of a major affective syndrome or of psychotic symptoms leading either to hospitalization or to outpatient treatment including psychiatric medication and disrupting daily activities. Episodes determined at followup by use of WHO-SCAN (see below) were also included. ICD–10 diagnoses were assigned to all episodes during followup using all available information, including patients' reports and hospital records (best estimate diagnoses, Leckman et al. 1982).

Present state ICD–10 diagnoses were assessed with the WHO–SCAN (van Gülick-Bailer et al. 1995). All interviewers were extensively trained for this instrument. The training was carried out by WHO-approved trainers, and the first ten interviews were supervised.

Social disability was measured using the German version of the WHO–DAS. The WHO–DAS evaluates functioning in a variety of social roles by means of a structured interview. Global functioning, functioning in general behavioral domains, and functioning in special roles (e.g., work, household, marriage) are measured on three separate scales ranging from 0 to 5, with a higher score designating a greater degree of handicap. Good interrater reliability has been demonstrated (Jung et al. 1989).

Deficits in psychological function perceived during the interview were evaluated by means of the WHO–PIRS (Biehl et al. 1989*a*). The observer rates the patient's behavior during the interview. Seventy-five items from 10 domains are integrated into three scales: a general scale, a subscale to measure the level of activity, and a subscale measuring involvement in communication behavior. Scores on these scales range from 0 to 5, with a higher score indicating a greater degree of handicap. The reliability and validity of the instrument have been demonstrated (Biehl et al. 1989*a*, 1989*b*).

The level of general functioning was assessed using the Global Assessment Scale (GAS) (Endicott et al. 1976; Spitzer et al. 1976), a widely used rating scale for the evaluation of the overall functioning of a subject during a specified period on a continuum from severe psychiatric illness to health. The interrater reliability of the scale is well documented (Endicott et al. 1976).

Statistical Analysis. Statistical analyses were performed using the Statistical Package for Social Sciences (SPSS) version 9.0. For continuous measures we tested for differences between the diagnostic groups using an analysis of variance followed by post hoc comparisons with Scheffé's procedure. χ^2 tests were used for contingency tables of categorical data. Bivariate comparisons of continuous data were performed with 2-tailed t tests. Significance was assumed at $p < 0.05$.

All subjects provided written informed consent. The study protocol was approved by the local ethics committee.

Results

Gender Distribution and Age of Onset. During the recruiting period, 42 patients fulfilled the ICD–10 criteria of ATPD. Females (n = 33) were much more frequently represented than males (n = 9) in the group of ATPD (78.6% vs. 21.4%). In contrast, an analysis of the unmatched sample of the 278 inpatients treated for schizophrenia (F20) during the recruiting period at the Department of Psychiatry and Psychotherapy of Martin Luther University Halle-Wittenberg revealed that only 112 patients with schizophrenia (40.3%) were female. The difference in gender distribution between ATPD and schizophrenia is highly significant (χ^2 = 21.58, df = 1, $p <$ 0.001). This difference is not reflected in our control group with PS, because the groups were matched for gender.

There were no differences between ATPD and PS regarding age at onset of the disorder (35.8 vs. 35.3 years; table 2). As discussed below, this finding is perhaps influenced by the selection of the PS group, especially by gender and positive symptomatology. In both ATPD and PS groups, almost every age is represented. Unfortunately, data on age at onset are not available for the unmatched group of patients with schizophrenia, but the mean age at index episode was 38.9 ± 13.8 years (mean ± SD) in this group, compared with 41.1 ± 12.4 years for the matched sample with PS.

Sociobiographical Features. Sociobiographical features of ATPD patients compared with those of PS controls and mentally healthy controls are given in table 3. No significant overall group differences emerged regarding season of birth, birth complications, disturbances of early life development (timing of psychomotor and speech development), and educational level. However, it was conspicuous that patients with ATPD more frequently had a higher level of education (i.e., completion of 12th grade), while patients with PS more frequently had a medium (completion of 10th grade) or a low (completion of 8th grade) educational level.

Differences were found regarding the frequency of a "broken home" situation among the three groups (a broken home situation was present when one or more of the following criteria were met before the patient's 15th year of life: death of one or both parents, divorce or separation of the parents, carepersons other than the parents, or severe addiction of one or both parents). Differences in the frequency of a broken home situation among ATPD patients, PS controls, and controls without mental disorder were highly significant. Pairwise comparisons, however,

Table 3. Sociobiographical characteristics

Characteristic	Acute and transient psychotic disorders ($n = 42$), *n* (%)	Positive schizophrenia ($n = 42$), *n* (%)	No mental disorder ($n = 42$), *n* (%)	Analysis		
				χ^2	*df*	*p*
Season of birth						
Spring	12 (28.6)	12 (28.6)	11 (26.2)	5.359	6	0.499
Summer	9 (21.4)	13 (31.0)	7 (16.7)			
Autumn	10 (23.8)	8 (19.0)	7 (16.7)			
Winter	11 (26.2)	9 (21.4)	17 (40.5)			
Premorbid social interactions						
Many contacts	29 (69.0)	14 (33.3)[1]	NA	10.018	2	0.007
Few contacts	11 (26.2)	24 (57.1)	NA			
Socially isolated	2 (4.8)	2 (4.8)	NA			
Educational level						
Very low	6 (14.3)	5 (11.9)	1 (2.4)	2.808[2]	2	0.246
Low	10 (23.8)	13 (31.0)	14 (33.3)			
Medium	16 (38.1)	22 (52.4)	18 (42.9)			
High	10 (23.8)	2 (4.8)	9 (21.4)			
No stable heterosexual relationship before onset of disorder	4 (9.5)	14 (33.3)	NA	7.071	1	0.008
Birth complications	7 (16.7)	4 (9.5)	3 (7.1)	2.089	2	0.352
Developmental disturbance	2 (4.8)	5 (11.9)	0	5.784	2	0.056
Family history						
Any psychiatric disorder in first degree relative	15 (35.7)	17 (40.5)	4 (9.5)	11.433	2	0.003
Major affective or psychotic disorder in first degree relative	6 (14.3)	7 (16.7)	1 (2.4)	4.982	2	0.083
Broken home	19 (45.2)	26 (61.9)	9 (21.4)	14.194	2	0.001
Life event before index episode	18 (42.9)	9 (21.4)	NA	4.421	1	0.035

Note.—NA = not applicable. Percentages do not add to 100 due to rounding.

[1]There were 2 (4.8%) subjects with positive schizophrenia with insufficient information on premorbid social interactions.

[2] Kruskal-Wallis test.

showed that although a higher proportion of PS than ATPD patients came from a broken home, the difference was not statistically significant ($\chi^2 = 2.345$, $df = 1$, $p = 0.126$). In contrast, the difference between controls without mental disorder and ATPD patients was significant ($\chi^2 = 5.357$, $df = 1$, $p = 0.021$) and that between controls without mental disorder and PS controls was highly significant ($\chi^2 = 14.155$, $df = 1$, $p = 0.001$).

There also were significant differences in premorbid social contacts between ATPD and PS patients. Subjects were rated as "many contacts" (about once a week), "few contacts" (between once a week and once a month), or "socially isolated" (contacts less than once a month) according to their premorbid social interaction with peers as judged from subjects' own reports, hospital files, and—where available—data from an informant. Patients with ATPD had significantly more social contacts before the manifestation of the illness than PS patients did.

Significantly more of the patients with PS (33.3%) than those with ATPD (9.5%) had never had a stable heterosexual relationship. If we consider that there is no difference between the groups regarding age at onset, this result cannot be attributed to differences in the age of the patients.

Seven patients with ATPD (16.7%) reported a birth complication such as prolonged labor; four patients with PS (9.5%) reported such complications. Only two patients with ATPD (4.8%) and five patients with PS (11.9%) had developmental disturbances in childhood as defined by retardation in motor or speech development as reported by the subject. There was no statistically significant difference between the two groups (table 3).

Family History. We questioned subjects about psychiatric illness in all first degree relatives, but we did not investigate the relatives themselves. In most cases it was

possible to make a provisional diagnosis and to differentiate between nonorganic psychotic or major affective disorder and other psychiatric disorders such as alcohol dependency. Presence of any mental disorder among first degree relatives was found in 35.7 percent of ATPD probands and 40.5 percent of PS probands but only 9.5 percent of controls without mental disorder; the overall difference was highly significant. The proportion of patients with a positive family history in PS was slightly higher than in ATPD, but the difference was nonsignificant ($\chi^2 = 0.02$, $df = 1$, $p = 0.653$). Some 14.3 percent of the patients with ATPD and 16.7 percent of the patients with PS but only 2.4 percent of the controls had first degree relatives with nonorganic psychotic disorders or major affective disorder. Although the relative difference between clinical samples and controls was even higher than for all mental disorders, because of the small number it narrowly failed to reach statistical significance ($p = 0.083$). There was no indication, however, of any substantial difference between ATPD and PS subjects with regard to a positive family history for nonorganic psychotic or major affective disorders ($\chi^2 = 0.091$, $df = 1$, $p = 0.763$).

Symptomatology of the Index Episode. The main symptomatological differences between ATPD and PS are shown in table 4. As can be seen in table 4, the main differences concern two symptoms: hallucinations and bizarre delusions (such as thought insertion, thought broadcasting, delusions of control) are significantly more frequent in schizophrenia than in ATPD. Schizophrenic first rank symptoms such as delusional percepts, audible thoughts, and delusions of control (Schneider 1959) were more frequent in schizophrenia than in ATPD, but the difference was not statistically significant. Interestingly, however, delusions in ATPD are very unstable; that is, they have very rapidly changing topics. In contrast, in PS none of the investigated patients showed the phenomenon of rapidly changing delusional topics.

Patients with ATPD showed anxiety significantly more frequently; "hyperthymia" was also markedly more frequent in ATPD, but the difference was not statistically significant. Rapidly changing moods (switching between depressive and euthymic) were a common characteristic of ATPD (69.0%), but only one schizophrenia patient showed this phenomenon. The rapidly changing mood of the ATPD patients (28.6%) had bipolar features (i.e., jumped immediately from depression to hyperthymia and vice versa).

Life Events. Approximately 42.9 percent of ATPD patients and 21.4 percent of PS patients had a stressful life event before onset of the index episode (table 3). A stressful life event was defined as any objective stressful change in circumstances (e.g., separation from spouse, becoming unemployed) that happened up to 6 months before onset of the episode and was rated as at least moderately distressing by the subject. The difference between the two groups was statistically significant.

Course and Outcome. We defined relapse of illness as any psychotic or major affective episode leading to either inpatient or outpatient treatment. Outpatient episodes, to count as relapse, had to entail interruption of daily activities plus frequent visits to the psychiatrist plus requirement of pharmacological intervention. Episodes determined at followup by use of WHO-SCAN were also included. Table 5 shows that relapses during the prospective followup period (from index episode to followup: mean 2.2 years for ATPD patients and 2.8 years for PS patients) were frequent in both groups. Despite the somewhat shorter followup in ATPD (table 2), relapses were more frequent in ATPD than in PS, but the difference was not statistically significant. A potential bias could have resulted from the inclusion of patients with multiple episodes in the study population. We therefore compared the relapse frequencies in patients recruited in their first episode with those of patients who had had earlier episodes. No significant difference could be found between patients with and without earlier episodes with regard to the occurrence of a relapse ($p = 0.454$ in Fisher's exact test for the ATPD group; $\chi^2 = 0.345$, $df = 1$, $p = 0.557$ for the PS group) and with regard to the number of relapses/year ($t = 0.510$, $df = 36$, $p = 0.613$ for the ATPD group; $t = 0.573$, $df = 36$, $p = 0.570$ for the PS group).

When affective (ICD–10 F3) and psychotic (ICD–10 F2) relapses were considered separately, 8 (21.1%) of the ATPD patients but none of the PS patients exclusively showed affective episodes during followup ($p = 0.005$ in Fisher's exact test). When only psychotic episodes were considered as relapses, 21 (55.3%) of the ATPD patients and 24 (63.2%) of the PS patients experienced a relapse during followup ($\chi^2 = 0.490$, $df = 1$, $p = 0.484$).

Table 6 gives the types of relapses according to ICD–10. These data can be used to estimate the diagnostic stability of ATPD. If a rather soft criterion of diagnostic stability was used (diagnostic criteria of schizophrenia not fulfilled during followup), all but two patients with an index diagnosis of ATPD remained diagnostically stable—that is, 94.7 percent of all patients with followup data. If a strict criterion of diagnostic stability was used (no episode other than ATPD during followup), 22 (57.9%) of the patients with an index diagnosis of ATPD remained diagnostically stable.

Psychosocial status at followup for the two clinical groups and the controls without mental disorder is given in table 7. There were no significant differences in the proportion of patients on psychiatric medication at followup.

Table 4. Symptoms during index episode

Symptom	Acute and transient psychotic disorder ($n = 42$), n (%)	Positive schizophrenia ($n = 42$), n (%)	Analysis	
			χ^2 ($df = 1$)	p
Overall psychotic symptoms (delusions or hallucinations)	42 (100)	42 (100)	NA	NA
Affective disturbances	42 (100)	41 (97.6)	NA	1.000[1]
Delusions	41 (97.6)	41 (97.6)	NA	1.000[1]
Thought disorder	36 (85.7)	41 (97.6)	NA	0.109[1]
Disturbance of drive and psychomotor disturbances	36 (85.7)	39 (92.9)	NA	0.483[1]
Hallucinations	32 (76.2)	39 (92.9)	4.459	0.035
Hyperthymia	32 (76.2)	24 (57.1)	3.429	0.064
Anxiety	32 (76.2)	22 (52.4)	5.185	0.023
Depressive mood	31 (73.8)	37 (88.1)	2.779	0.095
First rank symptoms of schizophrenia	30 (71.4)	36 (85.7)	2.545	0.111
Rapidly changing mood	29 (69.0)	1 (2.4)	40.652	<0.001
Bizarre delusions	21 (50.0)	30 (71.4)	4.043	0.044
Rapidly changing delusional topics	20 (47.6)	0	26.250	<0.001
Bipolar mood changes	12 (28.6)	1 (2.4)	11.012	0.001

Note.—NA = not applicable.
[1] Fisher's exact test.

Table 5. Episodes during prospectively observed followup period

Characteristic	Acute and transient psychotic disorder ($n = 38$)	Positive schizophrenia ($n = 38$)	Analysis	
			χ^2 or t	p
Without relapse (n, %)	9 (23.7)	14 (36.8)	$\chi^2 = 1.559$, $df = 1$	0.212
No. of episodes during followup period/yr, mean (SD)	0.70 (0.69)	0.42 (0.52)	$t = 1.981$, $df = 74$	0.051
Days/yr in episode during followup period, mean (SD)	36.0 (50.9)	32.1 (48.3)	$t = 0.349$, $df = 74$	0.728

Note.—SD = standard deviation.

For all other parameters, overall group differences were highly significant. Pairwise comparisons revealed the following significant differences: ATPD patients were more often in employment than PS patients ($\chi^2 = 8.769$, $df = 1$, $p = 0.003$), more often in a stable heterosexual partnership ($\chi^2 = 5.278$, $df = 1$, $p = 0.022$), and more often capable of independent living ($\chi^2 = 7.917$, $df = 1$, $p = 0.005$). PS patients were less often employed at followup than controls without mental disorder ($F = 29.186$, $df = 1$, $p > 0.001$), were less often in a stable heterosexual partnership ($\chi^2 = 9.709$, $df = 1$, $p = 0.002$), and were less often living independently than controls ($\chi^2 = 17.156$, $df = 1$, $p < 0.001$). ATPD patients were less often employed than mentally healthy controls ($F = 7.071$, $df = 1$, $p = 0.008$).

Table 8 gives outcome measures for the two clinical groups and controls without mental disorder as determined with standardized instruments covering social disability, psychological impairment, and general functioning. Overall group differences were highly significant for all measures. Post hoc tests using Scheffé's procedure revealed significant differences between ATPD patients and PS patients in all parameters. Similarly, in all parameters PS patients differed from controls without mental disorder. Although mean outcome measures in ATPD patients were slightly less favorable than in controls without mental disorder, the difference between ATPD patients and controls without mental disorder was significant for only GAS, the WHO–DAS global score, and the WHO–DAS subscore for general behavior.

Table 6. Types of episodes during prospectively observed followup period (only patients with relapse)

Episode type	Acute and transient psychotic disorder ($n = 29$)	Positive schizophrenia ($n = 24$)	Analysis χ^2 ($df = 1$)	p
Only acute and transient psychotic disorder episodes	13 (44.8)	2 (8.3)	8.619	0.005
Only schizophrenic episodes	1 (3.4)	19 (79.2)	32.044	<0.001
At least one:				
Acute and transient psychotic disorder episode	19 (65.5)	2 (8.3)	17.950	<0.001
Affective episode	11 (37.9)	2 (8.3)	6.214	0.013
Schizoaffective episode	4 (13.8)	0	3.581	0.058
Schizophrenic episode	2 (6.9)	21 (87.5)	34.733	<0.001

Table 7. Outcome: Psychosocial variables at followup

Variable	Acute and transient psychotic disorders ($n = 38$), n (%)	Positive schizophrenia ($n = 38$), n (%)	No mental disorder ($n = 42$), n (%)	Analysis χ^2	df	p
Employed	18 (47.4)	6 (15.8)	32 (76.2)	29.189	2	<0.001
Stable heterosexual partnership	23 (60.5)	13 (34.2)	34 (81.0)	10.457	2	0.005
On psychiatric medication	28 (73.7)	31 (81.6)	NA	0.682	1	0.409
Living independently	35 (92.1)	25 (65.8)	42 (100)	21.455	2	<0.001

Note.—NA = not applicable.

Table 8. Outcome: Social disability, psychological impairment, and general functioning at followup

Outcome	Acute and transient psychotic disorders ($n = 38$)	Positive schizophrenia ($n = 38$)	No mental disorder ($n = 42$)	Analysis F or χ^2	df	p
World Health Organization Disability Assessment Schedule						
Global score, mean (SD)[1]	0.82 (1.11)	1.74 (1.54)	0.17 (0.44)	F = 20.169	2,115	0.002
General behavior subscore, mean (SD)[1]	0.80 (1.05)	1.80 (1.35)	0.05 (0.17)	F = 32.328	2,115	<0.001
Special roles subscore, mean (SD)[1]	0.73 (0.86)	2.09 (1.58)	0.17 (0.39)	F = 35.323	2,115	<0.001
World Health Organization Psychological Impairments Rating Schedule						
General score, mean (SD)[1]	0.34 (0.51)	0.82 (0.94)	0.03 (0.08)	F = 17.158	2,114	0.003
Subscore activity/retreat, mean (SD)[1]	0.31 (0.53)	0.64 (0.78)	0.02 (0.08)	F = 13.024	2,114	0.033
Subscore communication behavior, mean (SD)[1]	0.36 (0.55)	1.00 (1.14)	0.03 (0.10)	F = 18.750	2,114	0.001
Global Assessment Score, mean (SD)[2]	81.4 (15.4)	66.2 (20.7)	95.8 (4.2)	F = 40.051	2,115	<0.001
> 70, n (%)	32 (84.2)	17 (44.7)	42 (100)	χ^2 = 36.126	2	<0.001

Note.—SD = standard deviation.

[1] Possible scores range from 0 to 5; higher scores indicate higher deficit.

[2] Possible scores range from 0 to 100; higher scores indicate better functioning.

Discussion

Although the present sample of ATPD is not representative in an epidemiologic sense, it comprises all consecutively diagnosed cases of ATPD treated as inpatients during a 5-year period at a German university hospital. The hospital serves a large municipal and suburban catchment area with an unselective admission policy. We therefore conclude that the present sample can be regarded as representative for a clinical inpatient population with ATPD. Moreover, ATPD is an acute and usually dramatic psychotic state that—considering the German health care system—nearly always will lead to inpatient treatment. Therefore, the findings of this study regarding the frequency of ATPD can be assumed to be representative. The findings of this study lead to the conclusion that ATPD is not very frequent, with ATPD patients composing 4.1 percent of patients with the ICD–10 categories of nonorganic psychotic and nonorganic affective disorders (F2 or F3) and 8.5 percent of the ICD–10 category of nonorganic psychotic disorders (F2).

The relative rarity of ATPD raises the question of whether the ICD–10 definition of ATPD might be too narrow. Indeed, some authors have presented evidence that a substantial number of remitting psychoses might have a longer duration than the 1–3 months allowed by ICD–10 criteria (Susser et al. 1995*b*; Mojtabai et al. 2000). As a prospective longitudinal case control study, the present investigation relies on well-defined categorical diagnoses made at the index admission. Although we are aware of the controversial nature of the operational criteria of ATPD (and other diagnoses), we have chosen to follow ICD–10 criteria without modification in order to facilitate comparison and replication of the present findings.

Diagnostic stability in the present sample of ATPD turned out to be limited: a *longitudinal* diagnosis of ATPD could be upheld in only 57.9 percent of the patients at followup if a strictly monosyndromal course was used as criterion. However, we found diagnostic stability to be higher than the 37 percent in the study of Amin et al. (1999) on first episode psychoses and the 48 percent in the study of Jørgensen et al. (1997) on ATPD. Diagnostic stability was lower than the 75 percent found by Sajith et al. (2002) in their study on acute polymorphic psychotic disorders. Importantly, in the present study, a change toward schizophrenia was rare. The occurrence of affective or schizoaffective episodes during the course of the disorder supports the reports of other authors that ATPD is still a heterogeneous category (Mojtabai 2000). Yet no valid criteria are available to reliably delineate "true" ATPD without awaiting the further course of the disorder. At this time, the findings discussed below can be taken to apply to a clinical sample of patients with ATPD diagnosed under standard conditions according to ICD–10.

Aiming to investigate similarities and differences of ATPD with schizophrenia, we recruited patients with an acute positive episode of ICD–10 schizophrenia, excluding chronic and residual states for reasons given in the Methods section. As we have argued above, the inclusion of only PS and the matching for gender and age created a control group with prognostic features considerably more favorable than for schizophrenia in general. Female gender in particular has been consistently shown to be correlated with a favorable course of schizophrenic disorders (Leung and Chue 2000). In the present study, differences between ATPD patients and controls with PS can therefore more confidently be attributed to diagnostic group as determined by the index episode, rather than demographic parameters or preexisting chronicity in the PS group.

Although ATPD is an ICD–10 diagnosis without an identical category in *DSM–IV,* there is a substantial concordance with the brief psychotic disorder (BPD) of *DSM–IV.* As implied by the diagnostic criteria, practically all BPD patients also fulfill the criteria of ATPD. As we have shown previously, 61.9 percent of the present sample of ATPD also fulfilled the *DSM–IV* criteria of BPD, while 31.0 percent were classified as schizophreniform disorder, 2.4 percent as delusional disorder, and 4.8 percent as psychotic disorder not otherwise specified (Pillmann et al. 2002). The remarkable similarity between BPD and ATPD suggests that the findings of the present study largely apply to *DSM–IV* BPD as well.

Similarities Between ATPD and PS. We did not find any significant differences between ATPD and PS with regard to age at onset, number of previous episodes, educational level, and season of birth. Age at onset in the present sample of patients with PS (mean 35.3 years) was higher than in unselected samples of patients with schizophrenia (Marneros et al. 1991; Tsuang et al. 1995). This difference can be attributed to the high proportion of females and the exclusion of chronic disease states in the control group with PS. Early adverse events including birth complications, disturbances of early life development, and presence of a broken home situation were not significantly more frequent in ATPD. However, a broken home situation (most often in the form of a discontinuity of caregiving) was significantly more often present in both clinical samples than in a control group without mental disorder. A broken home situation seems to be an unspecific factor and has been reported not only in people with psychiatric disorders but also in populations of offenders (Marneros et al. 2002*b*). Recently, discontinuity of caregiving in the form of parental loss has been highlighted as an important risk factor for psychiatric conditions such as major depression, bipolar disorder, and schizophrenia (Agid et al. 1999).

The proportion of patients with first degree relatives with a psychiatric disorder—particularly with affective or psychotic disorder—was higher both in ATPD patients and in PS patients than in controls without mental disorder, but there was no difference between ATPD patients and PS patients in this respect. In the present study we used only family history data obtained from the probands, so there might have been underreporting, and the differentiation of specific diagnoses in the relatives was not feasible. The present findings are compatible with those of a family study conducted in India by Das et al. (1999), who found elevated rates of psychotic disorders both in relatives of schizophrenia probands and—to a lesser degree—in relatives of ATPD probands. However, these authors also found that first degree relatives of ATPD probands had a higher prevalence of ATPD than those of schizophrenia probands, while first degree relatives of schizophrenia probands had a significantly higher prevalence of schizophrenia.

With regard to the course of the disorders, it was noteworthy that both patients with ATPD and patients with PS experienced relapses during followup frequently and in comparable numbers. This result, however, might be influenced by the fact that this case control study was not restricted to first episode patients. We chose to include patients with previous episodes in order to recruit a sample representing all stages of the illness. This procedure might result in an overrepresentation of patients with multiple episodes by a mechanism analogous to Berkson's bias (Berkson 1946). The bias may be more severe in the condition that shows fewer relapses in the population, thus diminishing existing differences. We therefore compared patients with and without earlier episodes but did not find any differences in the frequency of relapses either in the ATPD sample or in the PS sample. Hence, it is unlikely that the inclusion of multiple-episode patients has severely or differentially biased the present results. Together with the virtually identical mean age at onset and number of episodes before the index episode, we take this as an indication that there is little difference between ATPD and PS in the frequency of episodes during the course of the disorder.

Differences Between ATPD and PS. One of the most striking differences between ATPD and schizophrenia in general concerns the gender distribution: males with ATPD are the exception. This finding is remarkable because it seems that schizophrenia is equally represented in both genders or even slightly more frequent in males (Iacono and Beiser 1992; Häfner et al. 1998; Leung and Chue 2000). In ATPD, however, females are 3.7 times more frequent than males, which constitutes a major difference between the two groups of psychoses. This difference is not reflected in our control group with PS because the control group was matched for gender.

Although in sociobiographical features similarities prevailed, two relevant differences between ATPD and PS need discussion: PS patients showed fewer premorbid social contacts and a lower rate of stable heterosexual relationships before onset of the disorder. These differences are in accordance with the well-established findings that schizophrenia patients often show difficulties with premorbid adjustment and less often achieve partnership and marriage (Marneros et al. 1991; Riecher-Rössler et al. 1992; Tsuang et al. 1995).

There are some interesting differences in symptomatology between ATPD and PS. Although both psychotic disorders are characterized by delusions and hallucinations, the delusions of ATPD are very unstable regarding their topic. A rapid changing of the delusional topic can be observed in ATPD, sometimes giving the impression of confused themes. This is not the case in PS, in which the themes of the delusions are usually stable. Anxiety and euphoric or hyperthymic symptoms were more frequently represented in the ATPD group. Schizophrenic first rank symptoms were frequent in the ATPD sample as well. Of interest is the rapid change of mood in ATPD, which was one of the most essential points of the German concept of cycloid psychosis (Kleist 1928; Leonhard 1961; Perris 1986) and a feature of the bouffée délirante in French psychiatry (Marneros and Tsuang 1986; Pichot 1986). In this sense, an episode of ATPD can be described as a psychotic episode with very unstable delusional themes and very unstable mood status, changing between depression, euphoria, and normal mood.

Life events of negative subjective impact were more frequently found in the 6 months preceding an episode of ATPD than of PS. Although an increased frequency of negative life events has been described for schizophrenia, it appears less pronounced than in affective disorders (Paykel 1990). An increased frequency of psychosocial triggers for ATPD and related disorders has been suggested by some authors (Perris 1974; Collins et al. 1996) and is supported by the proximity of the concept of ATPD to the reactive psychoses (Ungvari and Mullen 2000).

Although the course of the ATPD and the PS samples was characterized by a high probability of relapse, there were consistent differences in outcome. At followup ATPD patients were more often employed and in a stable heterosexual partnership and were more often living independently. On standardized rating scales, ATPD patients showed a more favorable outcome than PS patients in the domains of social disability, psychological impairment, and general functioning. These data confirm and extend the findings of a favorable outcome of ATPD in the uncontrolled study of Jørgensen et al. (1997) as well as earlier

reports on acute brief psychoses using criteria differing from ICD–10's (Susser et al. 1995*a*, 1996).

Clinically, the present findings imply that in patients with ATPD it is justified to predict a generally favorable outcome. Patients may be advised that the probability of a good outcome is high in terms of both symptoms and social adjustment. At the same time, the probability of relapse appears to be as high as in schizophrenia, underscoring the importance of an adequate maintenance therapy in ATPD.

Conclusion

It can be concluded that ATPD as defined by ICD–10 is a group of psychotic disorders having many similarities with schizophrenia but also displaying some essential differences. The instability and acuteness of the symptomatology, the sex distribution, and the differences in premorbid adaptation and in outcome could be seen as lending decisive support to the hypothesis that ATPD is a group of psychoses different from schizophrenia. However, the limited diagnostic stability of ATPD as presently diagnosed in the ICD–10 calls for further efforts to define a more homogeneous phenotype. This might greatly enhance the chance to validate the concept of ATPD through genetic and biological findings. Despite the importance of biological validation, with the exception of the Indian family study discussed above (Das et al. 1999), no systematic studies have been conducted in this regard.

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