Marriage Rate and Fertility in Cycloid Psychosis: Comparison with Affective Disorder, Schizophrenia and the General Population

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Summary. A cohort of patients with cycloid psychosis ($n = 34$) admitted to hospital for the first time in 1925 was compared with affective patients ($n = 30$) and schizophrenic patients ($n = 81$) admitted at the same time as well as with the general population in the catchment area. The marriage rate in cycloid probands was in accordance with that of the general population at index admission. Five years later it was significantly lower than expected, but after 10 years the marriage rate was statistically in accordance with expected figures. Fertility was significantly higher than in schizophrenic probands ($P < 0.001$). Fertility in cycloid women was in accordance with expected figures based on the mean fertility of birth cohorts of women. It was, however, significantly lower than expected, both in affective women ($P < 0.05$) and in schizophrenic women ($P < 0.0001$). Prepsychotic fertility (before the index episode) did not significantly diverge from expected figures in cycloid women. It was, however, significantly lower both in affectively ill ($P < 0.05$) and schizophrenic women ($P < 0.001$). Postpsychotic fertility in cycloid women was in accordance with expected figures. In affective women it also approximated normality, but in schizophrenic women it was significantly lower than expected. Marital fertility was within the expected interval in cycloid probands. The observations are in support of the opinion that neither prepsychotic nor postpsychotic conditions constitute an unsurmountable obstacle to normal social adaptation in cycloid patients. The differences are also interpreted as an argument in favour of nosological autonomy of the category of cycloid psychosis.

Key words: Cycloid psychosis – Marriage rate – Fertility

Introduction

It is well-established in psychiatric epidemiology that marriage rate and fertility are higher in affective disorder, approximating the figures of the general population, than in schizophrenia [6, 13, 18, 21, 24, 25, 29]. In his study on fertility in mental illness, published in 1935, Essen-Möller [6] reviewed studies as far back as to the 19-th century where these facts were demonstrated in cohorts of patients admitted to mental hospitals. Even if diagnostic systems have changed in the course of time, it is not too daring a hypothesis to assume that these cohorts contain nuclei of cases, compatibly diagnosed from time to time, large enough to preserve significant statistical relationships.

The current study investigated the marriage rate and fertility in cycloid psychosis. Though similar syndromes had been described by several authors [15, 17], Karl Leonhard's concept of cycloid psychosis has won wide acceptance in Swedish diagnostics after its introduction at several psychiatric university clinics in the early 1970s [19, 20, 27]. Cycloid psychoses are characterized by a polymorphous admixture of affective and schizophrenic symptoms; confusion is often prominent, the course is recurrent and recovery without defect is the rule. As here defined, the category of cycloid psychosis overlaps with several of the categories in DSM-III. In the revised version (DSM-III-R), 'good prognosis' schizophreniform disorder seems to delimit a syndrome comparable to an important subgroup judged as cycloid by Leonhard [2, 3, 16]

Since premorbid adjustment is assumed to be normal and full recovery without defect is the rule, the marriage rate and fertility were assumed to approximate the figures of the total population, as in the case of affective disorder. Lower rates would be explained by the fact that recurrent episodes of psychosis would delay or, in serious cases, preclude marriage. Since the mean age at onset is lower in cycloid psychosis, than in affective disorder, frequent periods of illness during fertile years seem to be a more important obstacle to marriage and reproduction in the former than in the latter group. However, marriage rate and fertility will nevertheless always be higher than for schizophrenia. This is the hypothesis to be tested.

In his monograph on cycloid psychosis, Perris [27] investigated the celibacy rate and fertility in his probands. The rate of celibacy was found to be somewhat higher than that of bipolar affective patients and it was significantly higher in male than in female patients. Differences could, however, at least partly, be explained by the fact that more cycloid patients were of marriageable age at

the end of observation. Mean age at onset was 6 years lower in male than in female patients, and more than 4 years lower at the end of observation. Since the celibacy rate in the same age-classes is higher also among men than among women in the general population, the difference between sexes may be explained in this way.

There had been no previous studies on marriage rate and fertility in cycloid psychosis, and, as to my knowledge, no such study has been published afterwards. It is reasonable to assume that, in most other studies on marriage rate and fertility in mentally ill patients, cases of cycloid psychosis as here defined often have been regarded as either cases of affective disorder or schizophrenia according to the diagnostic system in use [4]. According to the hypothesis that both marriage rate and fertility in cycloid psychosis approximate normality, such a procedure would not change the figures if the concept of affective disorder is inclusive, permitting mood-incongruent psychotic features. If, on the other hand, the concept of schizophrenia is inclusive, as is the concept of schizophrenia of DSM-II [1], marriage rate and fertility would be higher in this group – even if only moderately so, since the incidence of cycloid psychosis as here defined is lower than the incidence of schizophrenia [22].

In still other studies, cycloid psychoses have obviously been assigned to an intermediate group, e.g. as "other or reactive functional psychoses" in Ödegård's studies, where this group was found to occupy an intermediate position also with respect to marriage rate and fertility [25].

The study of Essen-Möller [6], based on a large cohort of patients admitted to the Psychiatric University Clinic in Munich, Germany, during the first decades of this century contains diagnostic delimitations, which make it reasonable to assume that cases, regarded as cycloid by us, were assigned to a separate group in contrast to the group of schizophrenics as well as the group of affective patients. Obvious cases of schizophrenia (DpA) and manic-depressive illness (MdA) were separated from uncertain cases of schizophrenia (DpB), which seem to comprise what is now called negative schizophrenia and borderline cases, and uncertain cases of manic-depressive illness (MdB). This group (MdB) comprises manic-depressive cases initially judged as schizophrenic, but owing to the course, impossible to distinguish from manic-depressive patients. Finally, a group initially judged as MdA, but then deteriorating into typical schizophrenia (MdK), was separated. Figures were calculated separately for each group. As described by Essen-Möller – diagnoses originally made by Rüdin – it can be assumed that a considerable part of his group of atypical manic-depressive cases (MdB) should have been judged as cycloid by us, using Leonhard's system. Celibacy rate and fertility were intermediate in the MdB-group compared with the DpA- and the MdA-group.

Material and Method

All patients admitted to St. Lars Mental Hospital in Lund, Sweden, for the first time for psychosis or affective disorder during

1925 were selected as the cohort of investigation. Thirty-four of these patients (12 males and 22 females) were judged as prognostically verified cases of cycloid psychosis, 30 (9 males and 21 females) were suffering from affective disorder and 81 (45 males and 36 females) were verified as cases of schizophrenia after follow-up. In 7 cases, organic causes could not be excluded and, in 2 cases, the initial diagnosis could be neither verified nor denied. Records were rediagnosed in accordance to DSM-III and Leonhard's diagnostic system, including the category of cycloid psychosis, both at first admission and after follow-up.

Ten (29%) of the cycloid patients were diagnosed as schizophrenics according to records and 17 (50%) as cases of manic-depressive psychosis at index admission. Seven received other diagnoses: insania presenilis (5), psychosis ex infectione (1) and psychosis ex intoxicatione alcohol (1). At later admissions the diagnoses of 3 patients were changed.

When rediagnosed according to DSM-III the cycloid cases were distributed over six different categories. Eleven patients (32%) were diagnosed as major affective disorders with psychotic features at index admission. There were 7 cases (21%) diagnosed as schizophreniform disorder and atypical psychosis respectively. Eight patients were related to other categories [schizoaffective disorder (4), schizophrenia (3), acute paranoid disorder (2)]. Six patients received other diagnoses at later admissions.

Of the cases prognostically verified as affective disorder by us, 93.3% were also judged as cases of affective disorder at index admission according to the record diagnoses. One patient was rediagnosed otherwise at readmission; final concordance thus decreased to 90.0%. Concordance in the diagnosis of affective disorders was 100% with respect to DSM-III.

As to the diagnosis of schizophrenia concordance was 76.5% between cases prognostically verified by us and record diagnoses at first admission. When record diagnoses were changed in the process of disease, concordance increased to 88.9%. In several cases, however, it is our impression that obsolete record diagnoses were not changed. Concordance with DSM-III in the diagnosis of schizophrenia was 84% at first admission, but increased to 95.1 % when diagnoses were corrected. Several cases initially judged as paranoia in accordance with DSM-III deteriorated into chronic hallucinating schizophrenia. Among cases judged as schizophrenia in accordance with DSM-III, there were 2 cases of chronic schizoaffective disorder and 7 were cases of classic schizophrenia not fulfilling the criterion of age (< 45 years at onset of illness).

The procedure of rediagnosing has been described elsewhere [12]. Age at first episode (or onset) and at first admission were calculated, since they are of importance when comparing marriage rate and fertility rate in pre- and postpsychotic periods (Table 1). Figures are in accordance with expectations. The mean age of male and female cycloid probands at first episode was 1.7 years higher and 1.0 year higher respectively than in Perris' probands [27].

Marriage rates in the three groups of affective disorder, cycloid psychosis and schizophrenia were first compared with each other without correction for age and the situation in the general population. Marriage rates in these groups were then compared with the figures of the general population at four different points in time: at index admission in 1925, at estimated first episode, 5 years after

Table 1. Age at first episode (or onset) and at first admission

	Age at 1st episode				Age at 1st admission			
	Men		Women		Men		Women	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Affective disorder	32.7	9.5	37.6	12.8	39.1	11.6	46.1	14.3
Cycloid psychosis	28.3	9.6	33.8	10.7	30.3	10.8	37.7	12.0
Schizophrenia	29.6	11.9	32.1	12.7	31.9	11.7	35.1	13.1

index admission and finally 10 years after index admission. The figures of the general population were obtained from the censuses of 1910, 1920, 1930 and 1935 [7–9, 28] and based only on the situation in the heart of the catchment area, two densely populated counties in the southern part of Sweden (some 685.500 inhabitants in 1910 and some 767.500 inhabitants in 1935), to avoid bias due to regional differences. Expected figures were calculated as percentages for the 5-year-classes older than 15 years for each of the sexes separately. Observed and expected figures were then compared by means of the chi square method (goodness of fit). Total fertility was calculated for each group − legitimate and illegitimate births separately and in sum. Since the mean fertility declined dramatically in persons born during the second half of the 19th century − the period when the probands were born (1855–1911) − observed rates for women were compared with the general population by means of figures calculated for birth cohorts of all women. There are no corresponding estimations for men. The fertility of birth cohorts of Swedish women (number of children/woman) as far back as the 18th century has been calculated in Swedish population statistics [11]. The series of observed and expected figures were compared by means of the Wilcoxon signed ranks test. Observed fertility in women before and after index episode was compared with expected figures calculated from the aforementioned source. Available statistics made it possible to correct expected figures, both with respect to the decline in general fertility and to age-specific decrease in fertility. For affective women, 59% of remaining fertile years (age 15–50 years) after index admission occured after the age of 40 years. Corresponding figures in schizophrenic and cycloid women were 44% and 52% respectively.

Finally, fertility in marriage for the different diagnostic group was calculated. Comparison with the general population was achieved by figures from the census of 1930 based on duration of marriage divided into 5-year-classes. The series of observed figures in the probands and expected figures based on duration of marriage at admission to hospital care in 1925 and 5 years later, in 1930, were compared by means of the Wilcoxon signed ranks test.

Results

Marriage rates

Marriage rates in the different diagnostic groups were compared by means of Fisher's exact probability test. There were no significant differences between affective and cycloid patients. Marriage rate in the schizophrenic

Table 2. Frequencies of ever married (married, divorced, widowed) probands and marriages after 1st admission

		Ever married	%	Single	%	Marriage after 1st admission	% of marriages
Affective	M	5	55.6	4	44.4	2	40.0
disorder	F	17	81.0	4	19.0	3	17.6
	M + F	22	73.3	8	26.7	5	22.7
Cycloid	M	7	58.3	5	41.7	4	57.1
psychosis	F	14	63.6	8	36.4	4	28.6
	M + F	21	61.8	13	38.2	8	38.1
Schizophrenia	M	10	22.2	35	77.8	0	0.0
	F	8	22.2	28	77.8	1	12.5
	M + F	18	22.2	63	77.8	1	5.5

Table 3. Observed and expected marriage rate at first admission 1925, at 1st episode, 1930 and 1935

		Married		Single		Level of significance[a] (Chi square, goodness of fit)
		Observed	Expected	Observed	Expected	
Affective disorders						
In 1925	M	3	5.9	6	3.1	N.S.
	F	14	14.4	7	6.6	N.S.
	M + F	17	20.3	13	9.7	N.S.
At 1st	M	2	4.9	7	4.9	N.S.
episode	F	12	12.1	9	8.9	N.S
	M + F	14	17.0	16	13.8	N.S.
In 1930	M	2	5.7	6	2.3	0.01
	F	14	13.1	4	4.9	N.S.
	M + F	16	18.8	10	7.2	N.S.
In 1935	M	2	6.2	6	1.8	0.001
	F	12	11.3	3	3.7	N.S.
	M + F	14	17.5	9	5.5	N.S.
Cycloid psychosis						
In 1925	M	3	4.5	9	7.5	N.S.
	F	10	12.9	12	9.1	N.S.
	M + F	13	17.4	21	16.6	N.S.
At 1st	M	3	3.5	9	8.5	N.S.
episode	F	10	11.8	12	10.2	N.S.
	M + F	13	15.3	21	18.7	N.S.
In 1930	M	4	6.8	7	4.2	N.S.
	F	9	14.1	12	6.9	N.S.
	M + F	13	20.9	19	11.1	0.01
In 1935	M	5	7.3	5	2.7	N.S.
	F	11	13.8	8	5.2	N.S.
	M + F	16	21.1	13	7.9	N.S.
Schizophrenia						
In 1925	M	10	19.6	35	25.4	0.001
	F	7	18.6	29	14.4	0.001
	M + F	17	38.2	64	38.2	0.001
At 1st	M	10	17.0	35	28.0	N.S.
episode	F	7	16.0	29	20.0	0.01
	M + F	17	33.0	64	48.0	0.001
In 1930	M	9	23.9	30	15.1	0.0001
	F	7	19.2	24	11.8	0.0001
	M + F	16	43.1	54	26.9	0.00001
In 1935	M	9	26.7	28	10.3	0.00001
	F	6	20.2	23	8.8	0.00001
	M + F	15	46.9	51	19.1	0.00001

[a] To avoid random effects on significance the 0.01 level was chosen

group was, however, significantly lower than in the affective ($P < 0.00001$) and cycloid group ($P < 0.0001$). With regard to the sexes, there were no significant differences between affective and schizophrenic men ($P < 0.06$); but there were between cycloid and schizophrenic men ($P < 0.05$). The difference between affective and schizophrenic women and between cycloid and schizophrenic women were highly significant (Table 2).

As expected, marriage rate in the group of affectively ill patients did not significantly differ from the situation

Table 4. Total number of legitimate and illegitimate births in all probands, irrespective of marital status

		Legiti-mate children	Illegiti-mate children	Sum	Children/proband
Affective	M	11	2	13	1.4
disorder	F	45	2	47	2.2
	M + F	56	4	60	2.0
Cycloid	M	17	1	18	1.5
psychosis	F	46	13	59	2.7
	M + F	63	14	77	2.3
Schizophrenia	M	31	0	31	0.7
	F	31	9	40	1.1
	M + F	62	9	71	0.9

in the general population on any of the occasions when it was measured. It did among men, but this finding can be explained by random factors; the sample comprises only 9 persons. The marriage rate among schizophrenics is significantly lower than in the general population on all occasions. However, for men, at the estimated first episode, it was not significant. It continuously diverges from the expected rate as time proceeds. Some 80% of both men and women were single at first admission.

Marriage rate in the cycloid patients did not significantly deviate from what was expected either at index episode or at estimated first episode. Five years after the index episode it did for the whole group, but 10 years later, in 1935, figures do not significantly deviate from what is expected in the general population.

When figures were estimated for the years 1930 and 1935, deceased patients were continuously subtracted in all groups. The result is presented in Table 3.

Fertility rate

Since fertility declined dramatically in the general population during the years the probands were born, observed fertility rates alone are not very informative. The mean age of affectively ill men and women is some 10 years higher than the mean age of cycloid and schizophrenic men and women. The mean number of children of affective probands could therefore be expected to be slightly higher

than in the other groups. In fact, the mean number is slightly higher in cycloid than in affective probands (see Table 4), but there are no significant differences between these two groups. The number of children in these two groups are significantly higher than in the schizophrenic probands ($P < 0.01$ and $P < 0.001$). There are no significant differences between the three groups as far as men are concerned. The difference between affective women and schizophrenic women is on the $P < 0.05$ level and the difference between cycloid and schizophrenic women is on the $P < 0.01$ level. Fisher's exact test was used.

There were significantly more illegitimate births both in the groups of cycloid women ($P < 0.01$) and schizophrenic women ($P < 0.05$) than in that of affective women. Fisher's exact test was used. Of the schizophrenic women, only 2 (6% of all) gave birth to illegitimate children, while in the group of cycloid women there were 5 (23% of all).

For women with affective disorder the observed fertility, irrespective of marital status, was 71.2% of the expected frequency estimated from the mean fertility of birth cohorts of women. The difference is significant at the $P < 0.05$ level (Wilcoxon signed ranks test). For schizophrenic women it was as low as 42.2% of the expected frequency ($P < 0.001$). For women with cycloid psychosis the figures (96.5%) approximate the expected frequency and are thus considerably higher than for women with affective disorder, in spite of a lower marriage rate.

Fertility before and after the index episode was used as an estimation of pre- and postpsychotic adaptation in women. It should, however, again be stressed that the index episode is not identical with the first episode. As can be seen in Table 5, affectively ill women had a lower birth frequency than expected before index episode ($P < 0.05$). But, since the mean interval between the first episode and index episode was almost 10 years (in contrast to 4 years for cycloid women and 3 years for schizophrenic women), the decline may have appeared in that period; the birth frequency may well have been normal up to first episode. Postpsychotic fertility approximates expected figures.

For schizophrenic women observed fertilty is far below expected figures, both before and after the index episode ($P < 0.001$, $P < 0.0001$). For cycloid women there are no significant differences between observed and expected figures either before or after index episode.

Table 5. Observed and expected number of births before and after 1st admission and number of remaining fertile years of women admitted. Observed and expected figures compared by the chi square test (goodness of fit)

	Before 1st admission			After 1st admission			Fertile years after 1st admission
	Births observed	Expected number of births	Level of significance	Births observed	Expected number of births	Level of significance	
Affective disorders	41	57.9	$P < 0.05$	6	8.1	N.S.	170
Cycloid psychosis	41	47.8	N.S.	18[a]	13.3	N.S.	250
Schizophrenia	37	64.9	$P < 0.001$	3	29.9	$P < 0.0001$	495

[a] 19 children − one pair of twins

Table 6. Fertility in marriage at first admission. Observed and expected of children

		Number of marriages	Number of children		Level of significance (Wilcoxon signed ranks test)
			Observed	Expected	
Affective	1925	17	48	48.4	N.S.
disorder	1930	16	42	44.2	N.S.
Cycloid	1925	13	45	34.7	N.S.
psychosis	1930	13	45	37.6	N.S.
Schizophrenia	1925	17	63	39.0	$P < 0.05$
	1930	16	59	40.8	N.S.

Marital fertility

With regard to fertility in marriage at index admission, observed figures are in accordance with expected figures, both in the group of the affectively ill and in the group of those with cycloid psychosis. It is higher than expected in the schizophrenic group ($P < 0.05$, Wilcoxon signed ranks test). Five years later, it is still in accordance with expected figures for the two first groups, and no longer significantly higher than expected in the schizophrenic group. Patients deceased during these years were subtracted. The result is shown in Table 6.

Conclusions and discussion

In such a small sample as this, comprising only 145 cases at index point, random factors may produce differences significant in the sample, but because of bias impossible to generalize. Results diverging from well-established facts should therefore be treated with utmost caution. On the whole, figures derived in the groups of affective and schizophrenic patients are in accordance with expected results if compared with established facts. There are divergent figures, but in these cases there are some investigations supporting the results obtained in this study. The results of this investigation can be summarized for the different groups.

1. Affective disorder

The marriage rate is in accordance with expected figures derived from relevant censuses. The observed fertility in affectively ill women is significantly lower than expected. It is significantly lower than expected before index admission, but, since the mean interval between the first episode and the index episode was almost 10 years (in contrast to 4 years for cycloid women and 3 years for schizophrenic women), a decline may well have occurred in that period; birt frequency may well have been normal up to the first episode. Fertility after index admission is in accordance with the expected frequency. Marital fertility is in accordance with expected figures. The unexpectedly low birth rate contrasts with most other studies. Kallmann [14], however, found it to be significantly lower than expected, and Ödegård [24] found it to be

subnormal in his study of more than 34.000 admissions to mental care in Norway. Moreover, Ödegård found marital fertility to be lower in manic-depressive illness than in schizophrenia, which is in agreement with the findings of this study. Essen-Möller [6] concluded that a lower marital fertility could not be excluded after the onset of first episode of manic-depressive illness, even if it could not be unequivocally demonstrated. Perris [26] found the marriage rate to be significantly lower in bipolar than in unipolar depressions (especially pronounced in male patients), although there were no differences with respect to marital fertility. Though there was no comparison with the general population, the significant difference between these two groups suggests that the relative distribution of unipolar and bipolar patients within a group of affective patients may be of importance if such a comparison is made.

2. Schizophrenia

Marriage rate was significantly lower than expected on all occasions, but in male patients at onset of disease. Fertility was significantly lower than in the general population and in the other groups in all respects but marital fertility. Marital fertility was significantly higher than expected at index admission. The same tendency was already observed by Essen-Möller in male probands and has been confirmed in some later studies [10], but not found in others [30]. In still other studies, marital fertility has been found to be normal — at least with respect to paranoid schizophrenia [18]. Several factors, such as an increase or decrease in marriage rate in the general population, the introduction of family planning, the tendency to postponement of the first child, earlier hospitalization of individuals affected by mental illness and restrictions imposed by law against marriages in psychotics have been proposed as plausible explanations of divergent results in different studies [29]. These factors are assumed to have produced fluctuations in marital fertility in schizophrenics not synchronized with corresponding fluctuations in the general population. Hilger et al. [10] found the mean number of children in married schizophrenic patients to be higher than in controls for the years 1949–50 and approximately the same as in the controls for the years 1965–67. In Ödegård's study [25], marital fertility in male schizophrenics increased from a subnormal level in the period 1936–45 to 104.4% of the expected number in the period 1946–55. The proportion of illegitimate births in schizophrenic women was significantly higher than in affective women, but not higher than in cycloid women. An analogous observation was made by Stevens [31], who compared schizophrenic women with the general population.

3. Cycloid psychosis.

The marriage rate was significantly lower than expected only 5 years after index admission. Another 5 years later, in 1935, the frequency was in accordance with expected figures. This appears to be an argument in favour of the view that these patients remain healthy in between ex-

acerbations, since episodes of severe mental illness already experienced were no doubt considered to be an obstacle to marriage in the local community in those days, besides being a legal obstacle. Total fertility as well as pre- and postpsychotic fertility in women was in accordance with expected figures. The proportion of illegitimate births in cycloid women was significantly higher than in affective women. Marital fertility was in accordance with expectations. This result is also in accordance with that of Essen-Möller [6], who found that there were no differences in marital fertility between his group (MdB) − assumed to be nosologically comparable to our group of cycloid psychoses − and the general population.

The primary aim of this study was to test the hypothesis that marriage rate and fertility in cycloid psychosis approximate normality, a fact considered to be in favour of nosological autonomy of this group, or at least as being distinct from schizophrenia. On the other hand, only 38.2% (32.4% at index admission) of the patients considered to be cases of the cycloid syndrome could be consistently diagnosed as affective disorder with psychotic features in accordance with the very broad definition of affective disorders in DSM-III. In more than 60% of the cases, the prerequisite mood syndrome or the minimum number of additional criteria were lacking. According to records, 50% of the cases at index admission and 55.9% at final admission were diagnosed as cases of affective disorder − manic-depressive psychosis. But among these, 6 cases (18% of all) were subclassified as "confusio", a category used to indicate diverging clinical features in cases which nevertheless had to be classified in accordance with a diagnostic system designed for purposes of mental health statistics.

Objections can nevertheless be raised to the claim that cycloid psychoses form a nosologically and aetiologically homogeneous group. Some cases can, in fact, be regarded as atypical examples of affective disorder; still others as mild and episodic cases of schizophrenia. In a third group, aetiological factors of organic origin may be suspected. These psychoses are, in fact, often phenomenologically very similar to psychoses where organic factors are known, such as infection, intoxication or endocrine disorder. Whatever diagnostic system is used, however, there will always remain a group of cases distinct from major categories with respect to symptomatology, course, outcome or accessory characteristics. As we have shown elsewhere [12], these "atypical" cases significantly separated from the bulk of affective and schizophrenic cases when symptom ratings were analysed by multivariate methods. Subsyndromes derived by factor analysis were in accordance with classical descriptions of the cycloid psychoses.

As for accessory characteristics, McNeil [23] showed that there are significant differences in maternal adaptation and behaviour in offspring, when a group of mothers suffering from cycloid psychosis was compared with groups of mothers suffering from affective disorder or schizophrenia as well as with a group of mentally healthy mothers. The women were followed through pregnancy and after delivery. The result was interpreted as indirect evidence in favour of nosological autonomy of cycloid psychoses.

Differences in accessory characteristics, such as marriage rate and fertility, are here interpreted as indirect evidence for nosological autonomy (in analogy with conclusions made by McNeil). There is no evidence that either prepsychotic or postpsychotic conditions in cycloid patients constitute an insurmountable obstacle to normal adaptation regarding marriage and fertility. Minor deviations from expected figures could be explained by conditions less dramatic than episodes of mental illness, e.g. conditions accompanying many somatic illnesses. As shown, e.g. by Manfred Bleuler [5], libido in many schizophrenics is low. This is mirrored in the low fertility rate in our group of schizophrenics. The fertility in cycloid probands, quite in accordance with expected figures, therfore plausibly discloses a more vital personality. The difference in comparison with schizophrenia is thus apparent. Differences in comparison with affective illness are significant in several aspects investigated here, but are still primarily symptomatological.

References

1. American Psychiatric Association (1968) Diagnostic and statistical manual of mental disorders. 2nd ed. American Psychiatric Association, Washington
2. American Psychiatric Association (1980) Diagnostic and statistical manual of mental disorders. 3rd ed. American Psychiatric Association, Washington
3. American Psychiatric Association (1987) Diagnostic and statistical manual of mental disorder. 3rd ed. revised. American Psychiatric Association, Washington
4. Angst J, Scharfetter C, Stassen HH (1983) Classification of schizo-affective patients by multidimensional scaling and cluster analysis. Psychiatr Clin 16:254–264
5. Bleuler M (1972) Die schizophrenen Geistesstörungen im Lichte langjähriger Kranken- und Familiengeschichten. Thieme, Stuttgart
6. Essen-Möller E (1935) Untersuchungen über die Fruchtbarkeit gewisser Gruppen von Geisteskranken. Acta Psychiatr Neurolog Scand, Suppl VIII 1935.
7. Folkräkningen (Census) (1913) den 31 december 1910, vol. II. Statistiska Centralbyrån, Stockholm
8. Fokräkningen (Census) (1926) den 31 december 1920, vol. III. Statistiska Centralbyrån, Stockholm
9. Folkräkningen (Census) (1936) den 31 december 1930, vol. II and IX. Statistiska Centralbyrån, Stockholm
10. Hilger T, Propping P, Haverkamp F (1983) Is there an increase of reproductive rates in schizophrenics? Arch f Psychiat u Nervenkr 233:177–186
11. Hofsten E, Lunström H (1976) Swedish Population History. Main trends form 1700 to 1970. Urval Nr 9. Statistiska Centralbyrån, Stockholm
12. Jönsson SAT, Jonsson H, Nyman AK, Nyman GE (1991) The concept of cycloid psychosis: Sensitivity and specificity of syndromes derived by multivariate clustering techniques. Acta Psychiatr Scand 83:353–362
13. Kallmann FJ (1938) The genetics of schizophrenia. J. J. Augustin, New York
14. Kallmann FJ (1954) Genetic principles in manic-depressive psychoses. In: Hoch PH, Zubin J (eds) Depression. Grune & Stratton, New York
15. Kasanin J (1933) The acute schizo-affective psychoses. Am J Psychiatry 13:97–126

16. Kendler SK, Spitzer RL, Williams JBW (1989) Psychotic disorders in DSM-III-R. Am J Psychiatry 146:953–962
17. Langfeldt G (1939) The Schizophreniform States. Munksgaard, Copenhagen
18. Larsson CA, Nyman GE (1973) Differential fertility in schizophrenia. Acta Psychiatr Scand 49:272–280
19. Leonhard K (1961) Cycloid psychoses − Endogenous psychoses which are neither schizophrenic nor manic-depressive. J ment Sci 107:632–648
20. Leonhard K (1980) Aufteilung der endogenen Psychosen. 5th ed. Akademie Verlag, Jena
21. Lindelius R (1970) A study of schizophrenia. Acta Psychiatr Scand Suppl. 216
22. Lindvall M, Hagnell O, Öhman R (1986) Epidemiology of cycloid psychosis. A prospective longitudinal study of Incidence and risk in the 1947 cohort of the Lundby study. Eur Arch Psychiatr Neurol Sci 236:109–118
23. McNeil TF (1990) Cycloid and affective disorders: Reproduction, motherhood, postpartum psychoses, and offspring characteristics. In: Maneros A, and Tsuang M (eds) Affective and Schizoaffective Disorders. Springer, Berlin Heidelberg New York, pp 72–87
24. Ödegård Ö (1946) Marriage and mental disease. J Ment Sci 92:35–59
25. Ödegård Ö (1980) Fertility of psychiatric first admissions in Norway 1936–1975. Acta Psychiatr Scand 62:212–220
26. Perris C (1966) A study of bipolar (manic depressive) and unipolar recurrent depressive psychoses. Acta Psychiatr Scand. Suppl 194
27. Perris C (1974) A Study of Cycloid Psychoses. Acta Psychiatr Scand. Suppl 253
28. Särskilda folkräkningen (Census) (1937) den 31 december 1935, vol. II. Statistiska Centralbyrån, Stockholm
29. Saugstad LF (1989) Social class, marriage and fertiity in schizophrenia. Schizophr Bull 15:9–43
30. Slater E, Hare EH, Price JC (1971) Marriage and fertility of psychiatric patients compared with national data. In: Gottesman II, Erlenmeyer-Kimling L (eds) Fertility and reproduction in physically and mentally disordered individuals. Social Biology, Suppl. 18:60–73
31. Stevens B (1970) Illegitimate fertility in psychotic women. J Biosoc Sci 2:17–30