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Epidemiology of Cycloid Psychosis

A Prospective Longitudinal Study of Incidence and Risk in the 1947 Cohort of the Lundby Study*

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Summary. The objective of the present study on cycloid psychosis was to describe the incidence and risk in a defined population sample. We therefore re-evaluated specific diagnostic groups in the 1947 cohort of the Lundby Study. Three female cases were identified as cycloid psychosis according to the diagnostic criteria of Leonhard, Perris and Brockington. No men were found. The incidence rate (per 100 observation years) was found to be 0.016% for women. The cumulative probability i.e. risk, up to 60 years of age was calculated to be 0.7%. Incidence rate and risk for cycloid psychosis in women was thus about half of the corresponding values for schizophrenia as described for the same population in a parallel study. We conclude that cases of cycloid psychosis constitute a substantial proportion of female psychotic patients.

Key words: Cycloid psychosis – Epidemiology – Prospective longitudinal study – Incidence – The Lundby Study

Introduction

The Lundby Study was initiated in 1947 by Essen-Möller with the aim of describing personality and mental health in a defined population with a longitudinal perspective (Essen-Möller et al. 1956). The contributions by Hagnell and Öjesjö enabled re-investigations of the sample to be made in 1957 and 1972. The study, which is still in progress, has given unique insights into the epidemiology of psychiatric morbidity and into background factors concerning personality and social environment (Hagnell 1966, 1981; Hagnell et al. 1982; Hagnell et al. 1983; Öjesjö 1983).

Publications emanating from the study have covered numerous topics concerning mental health in the population, with emphasis on schizophrenic psychoses, depressive states, age psychoses and alcoholism. During this period the concept of cycloid psychosis, originally introduced by Kleist (1928), was consolidated and gained growing acceptance by the psychiatric profession. Diagnostic problems, clinical management and prognosis of such psychotic states have been extensively discussed, as reviewed by Leonhard (1961, 1980); Fish (1964); Perris (1974). So far, however, the research has largely been restricted to patients admitted to psychiatric clinics, which might possibly limit insight into prevalence, severity and course of this type of psychosis. The major aim of this study was therefore to add the epidemiological perspective applied to the defined population sample of the Lundby Study.

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Material and Methods

The population studied was the 1947 cohort of the Lundby Study, the 2550 persons, 1312 men and 1238 women, living in a geographically defined area in the south of Sweden (Lundby), (Table 1). Of the inhabitants 99% were personally examined by a psychiatrist. As previously mentioned, the investigations were repeated in 1957 and 1972, when the population was examined irrespective of domicile. The drop-out rate was at each time 1%–2%.

The three population studies were carried out in an identical manner. The psychiatrist interviewed the proband with special reference to mental health. He then described the proband's personality and behaviour, this description consisting of two sections. The first section contained specific items, in total 142, to be observed and graded. The second was a semi-structured description, corresponding to a clinical psychiatric examination. Finally the psychiatrist made an overall judgement including a diagnosis in the case of mental illness. Information from sources other than the personal examination was also extensively used. This additional information was obtained from official population registers, hospital and other institutional case histories and key-informants, e.g. social insurance office and local authorities. The latter were persons closely acquainted with the proband. For a detailed description of material and methods, see Hagnell (1966) and Hagnell et al. (1982).

The operational diagnostic groups re-evaluated in this study were 6 of the existing 18 (Table 2), since it was within these subgroups that cases of cycloid psychosis were apt to occur. They were: 6. Depression and 7. Depression, occurring with other psychiatric symptoms, 8. Mixed neurosis, 9. Mixed neurosis "deeper", with symptoms involving the personality at

Table 1. Survey of inhabitants in Lundby 1 July 1947 (2550 persons) (Hagnell et al. 1982)

Age in 1947 in years	Men			Women		
	In Lundby 1972	Moved 1947–1972	Died 1947–1972	In Lundby 1972	Moved 1947–1972	Died 1947–1972
00–09	73	116	8	43	164	0
10–19	57	149	7	41	140	1
20–29	78	91	11	69	57	3
30–39	113	59	21	120	48	10
40–49	110	37	52	107	41	31
50–59	42	14	60	64	11	59
60–69	8	5	99	17	3	99
70–79	0	0	82	0	0	75
80+	0	0	20	0	0	35
0+	481	471	360	461	464	313
Total		1312			1238	

Table 2. Operational diagnostic groups of psychiatric disorders in the Lundby Study

1. Anxiety
2. Anxiety + other psychiatric symptoms
3. Tiredness
4. Tiredness + other psychiatric symptoms
5. Tiredness + stomach nerves
6. Depression
7. Depression + other psychiatric symptoms
8. Mixed neurosis
9. Mixed neurosis "deeper", mixed neurotic symptoms that involve the personality to a deeper degree
10. Mental disorder + somatic illness
11. Child neurosis
12. Schizophrenia
13. Other psychosis (e.g. confusion, paranoia, "borderline" psychosis, psychogenic psychosis, manic psychosis)
14. Organic syndrome
15. Epilepsy with mental disorder
16. Senile dementia
17. Multi-infarct dementia
18. Age neurosis

a deeper level, 12. Schizophrenia, and 13. Other psychoses, such as confusion, paranoia, "borderline" psychosis, psychogenic psychosis and manic psychosis.

Individuals belonging to groups 6, 7, 8 and 9 were studied only when impairment was medium or severe. Mild cases were thus not included.

Diagnostic Criteria

The concept of cycloid psychosis and its delineation from other diagnostic entities such as schizophrenic psychosis, manic-depressive illness, temporal lobe psychosis and reactive psychosis is based on clinical observations by several investigators as reviewed by Perris (1974). Wernicke (1894); Kleist (1928); Kasanin (1933); Langfeldt (1939); Mitsuda (1965); Strömgren (1974) have, on the basis of different aspects of symptomatology and classification, described a group of patients condensed by Leonhard as cycloid psychosis cases. With the support of extensive clinical studies the further interpretation by Perris and Brockington (1981) of the concept of cycloid psychosis has given the following operational diagnostic criteria:

1. An acute psychotic condition, not related to the administration or the abuse of any drug or to brain injury, occurring for the first time in subjects in the age range 15–50 years.

2. The condition has a sudden onset with a rapid change from a state of health to a full blown psychotic condition within a few hours or at most a very few days.

3. At least four of the following must be present: (a) confusion of some degree, mostly expressed as perplexity or puzzlement; (b) mood incongruent delusions of any kind; most often with a persecutory content; (c) hallucinatory experiences of any kind, often related to themes of death; (d) an overwhelming, frightening experience of anxiety, not bound to particular situations or circumstances (pananxiety); (e) deep feelings of happiness or ecstasy, most often with a religious colouring; (f) motility disturbances of an akinetic or hyperkinetic type which are mostly expressional; (g) a particular concern with death; (h) mood swings in the background and not so pronounced to justify a diagnosis of affective disorder.

4. There is no fixed symptomatological combination. On the contrary the symptomatology may change frequently during the episode and shows a bipolar characteristic.

These criteria have been applied as the basis of diagnosis in the present study, since current diagnostic systems (ICD-8, DSM-III, Research Diagnostic Criteria) do not differentiate in a rational way the concept of cycloid psychosis from other psychotic states.

Results

Psychiatric Health in Population Sample

Previous reports (Essen-Möller 1961; Hagnell 1966; Hagnell and Rorsman 1978; Hagnell et al. 1982) have extensively described the risk and incidence of psychiatric morbidity in the population sample revised in the present study. Table 3 summarizes such background data as are relevant to this investigation (Hagnell et al. 1986).

Table 3A. Incidence and risk of contracting a psychosis for the first time. Data from a total population, age group 0–59 years, during the 25-year period 1947–1972[a]. Degree of impairment: severe + medium + mild

Age intervals in years	Observation years under risk	Cases	Rate per year	Probability of disease during age interval	Cumulative probability of disease
Men					
00–09	1072.3	0	0.0000	0.000	0.000
10–19	2940.9	1	0.0003	0.003	0.003
20–29	4571.4	9	0.0020	0.020	0.023
30–39	4479.4	3	0.0007	0.007	0.030
40–49	4314.1	3	0.0007	0.007	0.036
50–59	3835.4	1	0.0003	0.003	0.039
0+	21213.5	17	0.00080	—	—
Women					
00–09	1030.4	0	0.0000	0.000	0.000
10–19	2991.1	2	0.0007	0.007	0.007
20–29	4135.4	1	0.0002	0.002	0.009
30–39	3701.7	3	0.0008	0.008	0.017
40–49	3443.9	5	0.0015	0.015	0.031
50–59	3290.4	2	0.0006	0.006	0.037
0+	18592.9	13	0.00070	—	—

[a] Life period under risk limited to first 6 decades

Table 3B. Incidence and risk of contracting schizophrenia for the first time. Data from a total population, age group 0–59 years, during the 25-year period 1947–1972[a]. Degree of impairment: severe + medium + mild

Age intervals in years	Observation years under risk	Cases	Rate per year	Probability of disease during age interval	Cumulative probability of disease
Men					
00–09	1072.3	0	0.0000	0.000	0.000
10–19	2943.6	0	0.0000	0.000	0.000
20–29	4628.4	5	0.0011	0.011	0.011
30–39	4604.7	1	0.0002	0.002	0.013
40–49	4617.7	1	0.0002	0.002	0.015
50–59	4183.8	0	0.0000	0.000	0.015
0+	22050.5	7	0.00032	—	—
Women					
00–09	1030.4	0	0.0000	0.000	0.000
10–19	3005.0	0	0.0000	0.000	0.000
20–29	4237.1	2	0.0005	0.005	0.005
30–39	3937.2	2	0.0005	0.005	0.010
40–49	3991.9	1	0.0003	0.003	0.013
50–59	4031.3	1	0.0002	0.002	0.015
0+	20232.9	6	0.00030	—	—

[a] Life period under risk limited to first 6 decades

Screening for Possible Cases of Cycloid Psychoses

The extensive information about the probands made possible a search that included a complete re-evaluation of 514 different episodes of psychiatric impairment referring to 373 individuals and including examination of all available files and records. The distribution of the probands in the different diagnostic groups is shown in Table 4. Information from relevant psychiatric records from 1972 to 1984 was also collected in order to study the further course for a more reliable diagnosis. The study resulted in the ultimate extraction of three individuals who were subject to extensive diagnostic verification as cases of cycloid psychoses, according to criteria given above.

Cases of Cycloid Psychoses – Life History

To make the identification of probands impossible, selected details have been omitted or altered.

Case 1, Group 13

An unmarried female in the age group 30–39 years, 3/3 siblings. She had a cousin who had committed suicide. After school she

Table 3C. Incidence and risk of contracting 'other psychosis' for the first time. Data from a total population, age group 0–59 years, during the 25-year period 1947–1972[a]. Degree of impairment: severe + medium + mild

Age intervals in years	Observation years under risk	Cases	Rate per year	Probability of disease during age interval	Cumulative probability of disease
Men					
00–09	1072.3	0	0.0000	0.000	0.000
10–19	2940.9	1	0.0003	0.003	0.003
20–29	4631.5	5	0.0011	0.011	0.014
30–39	4628.3	2	0.0004	0.004	0.018
40–49	4606.2	2	0.0004	0.004	0.022
50–59	4187.7	1	0.0002	0.002	0.024
0+	22066.9	11	0.00050	—	—
Women					
00–09	1030.4	0	0.0000	0.000	0.000
10–19	3002.2	2	0.0007	0.007	0.007
20–29	4227.9	0	0.0000	0.000	0.007
30–39	3938.1	3	0.0008	0.008	0.015
40–49	3969.9	5	0.0013	0.013	0.028
50–59	3985.3	3	0.0008	0.008	0.035
0+	20153.8	13	0.00065	—	—

[a] Life period under risk limited to first 6 decades

Table 4. Distribution of the probands

	Men	Women
Depression	23	39
Depression + other	60	88
Mixed neurosis	17	37
Mixed neurosis, "deeper"	12	28
Schizophrenia	19	17
Other psychoses	19	14
Total	150	223

went to university, and during the 1950s and 1960s she sometimes had periods of depression with loss of concentration, slowness, "dreaming" and absent-mindedness. She had suffered stressful events at 20 years of age in connection with her father's death and her mother's need of help managing their business. She finally left university without graduating and moved back home. She consulted a psychiatrist for her depressions on two occasions. The diagnosis was then neurotic depression. In 1968 she had her first psychotic episode. Several weeks before admission to hospital she suffered from insomnia and was anxious with a feeling of catastrophe. She then started to talk incessantly without coherence, acted inadequately and seemed confused. It was later known that her sister was seriously ill. Low doses of haloperidol had a good therapeutic effect, and after a week she left hospital. The diagnosis was now psychosis alia.

At the interview in 1973 she remembered that she had been confused, in a panic and had seen everything through a yellowish light in the daytime. She also recalled auditory and visual hallucinations, unfortunately not described in the examination record.

At 40 years of age she had an infection, was tired, slept badly and became anxious. When admitted to hospital she acted calmly but could not concentrate and seemed not quite awake. She had a questioning expression on her face and no play of features at all. In the ward she was extremely anxious and very agitated. Again she improved with haloperidol. She stayed in hospital for almost a week. This time the diagnosis was psychosis reactiva confusiva. In 1974 she was re-admitted after a period of insomnia and tension. She also had auditory and visual hallucinations of both beautiful and dreadful character. She had many thoughts and wanted to reform society. At this time treatment with lithium was started. She only stayed 4 days in hospital. The condition was now regarded as a cycloid psychosis.

Minor psychotic episodes occurred in between these three episodes with anxiety and *Glück* and peace but still with hallucinations like revelations and preoccupation. During these periods she was usually on the move. The treatment with lithium was discontinued in 1977.

In 1978 she had a period of deterioration, especially before menses, with sleeplessness and incoherent thoughts. She still has to take occasional small doses of haloperidol, due to minor psychotic symptoms. Her working capacity has been reduced and she has a 50% disability pension.

Personality: When younger shy; more self-confidence when older. Good ego-strength.

Diagnosis according to Leonhard: Confusion and anxiety psychosis with a component of happiness.

Diagnosis according to DSM-III: Atypical psychosis.

Case 2, Group 6, 13

A married woman in the age group 40–49 years, 3/3 siblings. Her mother had suffered from depression, one sister had committed suicide, and another sister had a depressive personality.

In 1952 after her mother's death she was depressed, anxious, suffered from insomnia, lost weight and had self-reproaches. She also had feelings of derealisation and ideas of reference. After receiving four ECT treatments she recovered completely. Diagnosis: Insufficientia depressiva. She was then well until the autumn of 1966, when engaged in a relative's funeral. She was restlessly running around talking to people superfluously with benevolence. But she was also easily worried and had insomnia. Following deterioration in January 1967, she visited sick persons, and danced in the light of a candle with a hymn book in her hand. She refused admittance to a psychiatric clinic but had lithium, a neuroleptic and recovered.

In the summer of 1967, after an infection of long duration, she was depressed, could not sleep, was forgetful and had difficulty in thinking. She took an overdose of barbiturates. In the psychiatric department she was restless with overactivity, talked without coherence and was extremely anxious. She thought that she had been in a car accident. She had auditory and visual hallucinations, for instance hearing her son talk. The treatment was ECT, now combined with imipramine. She left hospital after 3 weeks following recovery. The diagnosis was psychosis manico-depressiva.

In the autumn of 1967 she relapsed. She gave a lingering impression with latency in her answers. She thought that the other patients were people placed there to superintend her, and that the TV was talking about her, the papers writing about her and radiation being directed at her. She heard many voices which reproached her and accused her, and she thought she was to be punished. During the stay in the hospital she had an epileptic seizure. At this time the EEG was pathological with bilateral occipito-temporal 5 cps activity, although subsequent neurological investigation was negative. After some time she moved into a condition of elation, singing and laughing. She was now treated with lithium and thioridazine and recovered. She was discharged after 5 weeks. Diagnosis: Psychosis schizoaffectiva.

During the following 10 years she had one slight depression and one period after her husband's death when she was hypomanic.

In 1978 she suffered an inadvertent intoxication by lithium (serum Li = 1.9 mmol/l). She was in a dreamy state and slightly disoriented when admitted. She had not slept well. Her answers came with latency, she confabulated and laughed inadequately. When the lithium treatment was interrupted, she became lucid and was discharged. After a month she became quite confused, was agitated and at the same time both sad and happy. In the hospital she arranged her own wedding party. She often had thoughts and ideas with an erotic content. The treatment consisted of moderate doses of neuroleptics. It took weeks for her to recover. The diagnosis this time was psychosis cycloides.

In the following year there was a minor relapse with anxiety and depression. In 1980 the proband died of a myocardial infarction.

Personality: Lively, cheerful, enjoyed life.

Diagnosis according to Leonhard: Anxiety happiness psychosis with confusion.

Diagnosis according to DSM-III: Bipolar disorder.

Case 3, Group 13

A married woman in the age group 40–49 years, ⅛ siblings. One brother suffers from a schizophrenic psychosis, and an aunt had some kind of psychosis. After partus in her early thirties she was tired and low for several years, slept badly and was easily anxious. She did not have any more children. When examined in 1947 she was serious and regarded as habitually depressed. In 1952 the proband developed cancer, which was cured 5 years later.

In 1953 she came to the psychiatric out-patient department. There had been trouble at work, she had too much to do and had not slept at all for 2 nights. Suddenly she grew confused and had a feeling of catastrophe, thinking the whole world would be changed, but at the same time a sense of happiness. She thought that everyone in the family would be cured from their illnesses. She also had some compulsive thoughts. The attending psychiatrist considered her slightly confused, puzzled, perhaps somewhat depressed with rather little play of features. She received three ECT treatments and recovered. At the examination in 1957 she seemed tense, stiff and talked little and vaguely.

She had no contact with the psychiatric department until 1961. Then she had been very anxious for some weeks, but not actually depressed. She became quite confused and said that her husband was ill. Again she had insomnia. It was noted that the patient was not quite awake, somewhat depressed with little play of features. The diagnosis was the same as the first time, psychosis confusiva. The treatment was the same too, six ECT sessions, and she recovered completely. She was in good health until 1971, when she fell ill in a similar manner with depression, anxiety, sleeping difficulties and incoherent talking. She was not quite oriented and seemed perplexed with a clouded consciousness. She reported some light phenomena, and it was now also known that she had had hallucinations (not specified) in 1961. Her husband said that her memory had become impaired.

Psychological tests showed no unequivocal signs of organic reduction. The EEG showed effects of medication. The proband was admitted to hospital for a week and treated with haloperidol and recovered again.

At Christmas time, 1971–72, she had a slight depression. In 1972 she had a new episode of the same kind as in 1971 and had to stay in hospital for 2 weeks. Small doses of haloperidol and thioridazine helped her to recover. In 1973 she had a minor depression.

Personality: Easily worried, melancholic, quiet and passive.

Diagnosis according to Leonhard: Confusion psychosis with anxiety and some akinesia.

Diagnosis according to DSM-III: Atypical psychosis.

Diagnostic Comment

The three cases described are in our opinion cases of cycloid psychosis. However, a few remarks are necessary. In case 1, the proband developed a reduced working capacity with a 50% disability pension. In spite of this fact, we think that this case meets the course criteria, since the proband had no defect of the type seen in schizophrenic patients for instance. We

Table 5. Description of probands in group 13, other psychosis

Age group at onset	Depr spts	Manic spts	Con-fusion	Paranoid delusions		Other delusions		Halluci-nations	Anxiety	Defect	Tentative classification	ICD-8	Descriptive classification and comments
				Mood-congr.	Mood-incongr.	Mood-congr.	Mood-incongr.						
Men													
10–19	×				×		×		×		Schizophrenia latens	295,50	Non-regressive schizophrenia
20–29					×				×		Psychosis reactiva paranoides acuta	298,30	Psychotic reactions due to stress in an immature personality
20–29							×	×		×	Schizophrenia NUD	295,99	Schizophrenia together with chronic alcoholism
20–29					×			×	×		Psychosis cum intox. (psychostimulantia) *Delirium tremens*	294,30 291,00	Psychotic episodes due to abuse. Narcomania. Chronic alcoholism
20–29			×								Psychosis alcoholica alia definita	291,98	Abnormal alcohol reaction. Psychic insufficiency
20–29		×				×					Psychosis reactiva excitativa	298,10	Reactive psychosis in a sensitive personality
30–39			×					×			Delirium tremens Hallucinosis alcoholica	291,00 291,20	Chronic alcoholism in a dysphoric neurotic personality
30–39			×								Psychosis alcoholica alia definita	291,98	Abnormal alcohol reaction. Alcoholism
40–49			×					×			Psychosis cum neoplasmate intracraniali	293,30	Organic psychosis post.-op. (pituitary adenoma)
40-49	×		×	×					×		Psychosis depressiva	296,20	Depressive psychosis that started after an encephalomeningitis
40–49					×						*Paranoia alcoholica*	291,30	Paranoid delusions together with alcoholism
50–59			×					×			Delirium tremens	291,00	Chronic alcoholism
60–69	×										Perturbationis mentis per perturbationem circulationis	309,30	Psycho-organic syndrome due to recurrent cerebral haemorrhage
60–69	×				×						Reactio depressiva	300,40	Mental change with depression, stubbornness and paranoid symptoms in connection with ventricular cancer
70–79					×						Schizophrenia NUD?	295,99	Eccentric personality with paranoid spts. No psychiatric contact
70–79			×					×			Dementia senilis NUD	290,19	Frequent senile psychoses
70–79			×						×		Confusio mentis	298,20	Confusion some time before death from cancer
70–79	×		×								Psychosis senilis Retardatio mentalis levis	290,00 311,99	Sudden confusion in a mentally retarded
80–89			×						×		Dementia senilis NUD	290,19	Senile psychosis. Chronic alcoholism

Table 5 (continued)

Age group at onset	Depr spts	Manic spts	Con-fusion	Paranoid delusions		Other delusions		Halluci-nations	Anxiety	Defect	Tentative classification	ICD-8	Descriptive classification and comments
				Mood-congr.	Mood-incongr.	Mood-congr.	Mood-incongr.						
Women													
10–19			×				×	×	×	×	Psychosis NUD	299,99	Psychosis in a mentally retarded with
											Retardatio mentalis levis	311,99	congenital aorta stenosis
10–19								×			Psychosis cum intoxicatione (incomplete information)	294,30	Psychosis with visual hallucinations due to drug intoxication
30–39			×						×		Psychosis reactiva confusiva	298,20	Reactive psychosis in a psycho-infantile
30–39			×		×						Psychosis cum encephalitide NUD	292,39	Confusion psychosis in connection with encephalitis
40–49	×					×			×	×	Psychosis depressiva	296,20	Recurrent depressions with some defect. Stereotactic op – 70
40–49				×							Schizophrenia paranoides	295,30	Affect laden paraphrenia (Leonhard)
40–49	×			×	×						Persona schizoides	301,20	Pathological personality. Prepsychotic?
50–59		×			×						Psychosis paranoides	299,99	Pathological personality with a paranoid
											Persona ixoides	301,88	psychosis
50–59	×				×						Psychosis reactiva paranoides	298,30	Reactive psychosis in a sensitive
											Persona paranoides	301,00	paranoid personality
60–69	×			×	×			×			Paraphrenia involutionalis	299,99	Affect laden paraphrenia (Leonhard)

also believe that a high frequency of relapses may result in a negative social adjustment, as shown in this proband.

In case 2, the obvious differential diagnosis is a bipolar disorder, and the case indeed fulfils the criteria according to DSM-III. But there were several atypical features such as mood incongruent auditory and visual hallucinations. Even the mood congruent auditory hallucinations were atypical, since there were so many. Concomitant confusion was also noted. At a later admission the proband again had obvious confusion and mood swings. The different clinicians responsible for the patient changed the diagnosis after some time into schizoaffective psychosis and later into cycloid psychosis. Our conclusion is that this patient suffered from a cycloid psychosis but with obvious features mimicking a manic-depressive disorder and in this respect represents the difficulties sometimes seen when differentiating cycloid psychoses from manic-depressive disorders. As pointed out by Brockington et al. (1982a) prospective clinical studies are needed to throw more light on this question.

Case 3 is a quite clear case of cycloid psychosis with confusion, anxiety and, on some occasions, happiness, akinesia and visual hallucinations.

All the three cases were found in the group "Other psychosis". One of them was also recognized in the group "Depression". The group of "Other psychosis" was very heterogenous, as seen from Table 5. Several of the cases had an organic background, such as brain tumour, brain haemorrhage, encephalitis, abuse, ageing. Some of them probably suffered from schizophrenic syndromes but with a few uncertain points from the diagnostic point of view, like a concurrent alcoholism, too little information about the proband, or a clinical symptomatology (two cases) that we now regard as belonging to affect laden paraphrenia (Leonhard 1961). Another subgroup consisted of individuals with pathological personalities who contracted reactive psychoses in connection with exogenic traumas.

Three cases in the group 'Other psychosis' deserve special interest. One was a woman in age group 40–49 years, who had, over many years, recurrent depressions with anxiety and hypochondriacal delusions. In spite of anti-depressive therapy and neuroleptics she never recovered. She gradually became passive, emotionally withdrawn with signs of defect and presumably had psychotic episodes of a schizophrenic type. Eventually she had a stereotactic operation, unfortunately without lasting improvement. The diagnosis that was reached was depressive psychosis, although shizo-affective schizophrenia was also discussed. Another woman in age group 30–39 years presented a picture of a confusion psychosis on two occasions, but later developed depressive periods alternating with periods of overactivity and sleeplessness. She had an immature personality and the examiner in the field study looked upon the symptomatology as episodes of reactive psychosis due to stress at work.

The third case was a man in age group 40–49 years who contracted encephalomeningitis in middle age. Afterwards he became depressed with agitation and anxiety. He was suspicious and had paranoid delusions, which were mostly mood congruent. He was very afraid that a big catastrophe would happen, and sometimes he acted as if confused. After several months he committed suicide. We have discussed whether he had a cycloid psychosis – the only man in the study. However, the case did not entirely fulfil the diagnostic criteria for cycloid psychosis. With all probability this man suffered from a de-

pressive psychosis complicated or precipitated by the encephalomeningitis.

In the remaining diagnostic groups there was only one case of interest to this study. That was a woman in group 7 and 8 who developed an affective psychotic state post partum with features of confusion and delusions. Despite long-term treatment with neuroleptics she gradually developed a picture of paranoid psychosis with no obvious periods of restitution, tending rather to deteriorate.

Further Characteristics of Probands with Cycloid Psychosis

The long-term course of cycloid psychosis has interested several authors in their attempt to evaluate background factors

Table 6. Characteristics of probands with cycloid psychosis

Background factors	Case 1	Case 2	Case 3
Hereditary load	One cousin committed suicide	One sister committed suicide. Another sister melancholic. Mother had depressions	One brother has schizophrenia. One aunt had some kind of psychosis
Birth rank	3/3	3/3	1/8
Sex	Woman	Woman	Woman
Parental deprivation	Father died when the proband was 20 years of age, just before the psychiatric symptoms began	Mother died just before the first psychiatric symptoms that led to contact with psychiatrist	Nothing of interest known
Social background	Unmarried. Secretary. 50% disability pension	Married. Housewife, part-time cook	Married. Housewife, part-time shop assistant
Age at the first psychotic episode	39 years	40 years	40 years
Possible precipitating factors associated with the first psychotic episode	Sister seriously ill with cancer	Two funerals – a relative and a neighbour	Trouble in her place of work
Personality	Shy in younger age. When older more confidence. Good ego-strength	Lively, cheerful. Enjoyed life	Easily worried, melancholic, quiet and passive
Classification according to Leonhard	Confusion and anxiety psychosis with a component of happiness	Anxiety happiness psychosis with confusion	Confusion psychosis with anxiety and some akinesia
Number of psychotic episodes, 1947–1984	6	5	4
Average duration of hospital stay per episode	About 1 week	About 4–5 weeks	About 1–2 weeks

Table 7. Incidence and risk of contracting a cycloid psychosis for the first time. Data from a total population, age group 0–59 years, during the 25-year period 1947–1972[a]. Degree of impairment: severe + medium + mild

Age intervals in years	Observation years under risk	Cases	Rate per year	Probability of disease during age interval	Cumulative probability of disease
Men					
00–09	1072.3	0	0.0000	0.000	0.000
10–19	2940.9	0	0.0000	0.000	0.000
20–29	4571.4	0	0.0000	0.000	0.000
30–39	4479.4	0	0.0000	0.000	0.000
40–49	4314.1	0	0.0000	0.000	0.000
50–59	3835.4	0	0.0000	0.000	0.000
0+	21213.5	0	0.00000	0.000	0.000
Women					
00–09	1030.4	0	0.0000	0.000	0.000
10–19	2991.1	0	0.0000	0.000	0.000
20–29	4135.4	0	0.0000	0.000	0.000
30–39	3701.7	1	0.0002	0.002	0.002
40–49	3443.9	2	0.0005	0.005	0.007
50–59	3290.4	0	0.0000	0.000	0.007
0+	18592.9	3	0.00016	—	—

[a] The figures for probability and cumulative probability are calculated from the formulas: $\rho j = 1 - e^{-10\mu j}$ and $\pi j = 1 - e^{-10\mu j}$. ρ = probability, π = cumulative probability, μj = rate per year during age interval and cumulated rate per year up to certain age, respectively

Table 8. Incidence rate per 100 observation years for different groups of psychosis. Age group 0–59 years

	Psychosis	Cycloid psychosis	Schizophrenia	Other psychosis
Men				
Incidence rate (%)	0.080	0.000	0.032	0.050
Women				
Incidence rate (%)	0.070	0.016	0.030	0.065

Table 9. Cumulative probability of disease. Age group 0–59 years

	Psychosis	Cycloid psychosis	Schizophrenia	Other psychosis
Men				
Cumulative probability (%)	3.9	0.0	1.5	2.4
Women				
Cumulative probability (%)	3.7	0.7	1.5	3.5

that may be significant as etiological or precipitating constituents. Table 6 lists a survey of such possibly relevant factors extracted from case histories.

Epidemiological Statistical Study

The epidemiological statistical methods applied in the Lundby Study and utilized in this investigation are described elsewhere (Hagnell et al. 1986). The material of the Lundby Study has never been confined to any one specific classification or diagnostic system. However, the information collected can be used for many classification systems. Cycloid psychosis, for instance, was never in the minds of the psychiatrists when doing either the field studies or the evaluations. When delineating observation years under risk for cycloid psychosis, the figures for psychosis were used. This was an approximation since cases of cycloid psychosis contribute to this group. They are, however, few and had insignificant influence on total figures.

Nonetheless, corrections were made for observation years lost through deaths. The results obtained indicate that the incidence rate per 100 observation years for cycloid psychosis based on data from the years 1947–1972 was 0.016% for women (Table 7). These figures should be compared with the corresponding incidence rates for psychosis, schizophrenia and other psychosis in the same cohort (Table 8). The rate for cycloid psychosis for women was around 50% of the rate for schizophrenia in women. The cumulative probability of cycloid psychosis, i.e. risk, up to 60 years of age was 0.7% for women (Table 7). This was about 50% of that for schizophrenia (Table 9).

Sex differences in mental illness are well documented (Tonks 1976). The female predominance in cycloid psychosis was also seen by Perris (1974). The sample size in this study is probably too limited to reflect morbidity in cycloid psychosis among men.

Discussion

Epidemiological studies cannot in the clinical sense clearly delineate individual psychiatric disorders. The diagnostic means and measures applied reflect a situation where the investigating psychiatrist has to depend solely on overall judgement and professional experience rather than extensive diagnostic discussions and investigations in a clinical setting. However, the present study when reviewing diagnostic decisions and accumulated additional information by records also dares to create retrospectively a possible picture of an individual with cycloid psychosis at a time when this clinical concept was not yet being used. Our present view of cycloid psychosis emphasizes the interaction between hereditary disposition and precipitating factors of a psychological or other environmental nature in the course of the disorder. The 25-year perspective would not only generate figures on possible incidence but might perhaps also indicate whether cycloid psychosis has become more or less common. It is tempting to speculate that the cycloid psychoses before the advent of modern ECT techniques and neuroleptic drugs had a less favourable outcome with a late clinical picture indistinguishable from other major psychoses. The fact that in 1947 the Lundby cohort exhibited no patient with a convincing clinical picture of cycloid psychosis might in fact give some support to such an idea.

In the present study it was necessary to adopt the concept of cycloid psychosis according to Leonhard as interpreted by Perris and Brockington to gain operational diagnostic criteria for the re-evaluation of cases. Although these criteria may not expose an aetiological entity, an intelligible delineation of a group of patients was obtained. It is also accepted that the boundaries towards other psychotic states such as manic psychoses and other affective disorders, schizophreniform states and epileptic psychoses are not as clearcut as current diagnostic classification might suggest (Tsuang et al. 1976; Tsuang 1979; Angst et al. 1980; Clayton 1982; Brockington et al. 1982a, Okasha 1983; Zaudig and Vogl 1983).

It is interesting to follow the increasing acceptance of cycloid psychosis as a meaningful clinically distinguishable group by the international profession. No epidemiological study has so far been published covering cycloid psychosis. The figures obtained by us for incidence of cycloid psychosis could, however, be compared with findings in a clinical sample of patients. Cutting et al. (1978) reported from a study of admissions of psychotic patients to Maudsley Hospital, that 3% of the patients met the diagnostic criteria for cycloid psychosis formulated by Perris. But since the admissions were highly selective they estimated the actual figure for a psychiatric hospital to be about 8%. Brockington et al. (1982b) have in a similar study estimated the proportion of psychiatric patients with cycloid psychosis to be about 12%. These figures are consistent with those of the present study if the incidence of cycloid psychosis is related to that of psychosis.

In conclusion, the diagnostic entity of cycloid psychosis from our own experience is usually recognized in a psychiatric clinic. Yet the diagnostic difficulties, especially in relation to manic-depressive and epileptic disorders must be further analysed. This investigation showed, however, that one can also identify patients with cycloid psychosis in a population study.

Finally, this study indicates that the figures for incidence rate and risk for cycloid psychosis among women constitute a substantial part, about 20%, of the corresponding figures for psychotic disorders in women.

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