

Puerperal Psychosis

Puerperal Psychosis

de kraambedpsychose

proefschrift

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Jean-Luc Klompenhouwer

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Promotor: Prof. Dr. W.J. Schudel
Promotor: Prof. Dr. L. Peplinkhuizen

Overige leden: Prof. Dr. H.C.S. Wallenburg
Prof. Dr. W. van Tilburg

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VOORWOORD

Dit proefschrift over de psychosen in het kraambed heeft de klinisch-psychiatrische invalshoek als belangrijkste benaderingswijze. Het is geschreven vanuit de overtuiging dat zorgvuldig onderzoek aan de patiënt, gedetailleerde kennis van psychopathologische fenomenen en zicht op de belevings- en ervaringswereld van patiënten de sleutel zijn tot grensverleggend onderzoek in de psychiatrie. Hoewel moderne classificatiesystemen orde hebben gebracht in de chaotische veelheid aan diagnostische termen en "ziektebeelden" en door het gebruik van heldere en gedefinieerde criteria bij de classificatie van psychiatrische stoornissen de internationale overdraagbaarheid en communicatie aanzienlijk is verbeterd, heeft de massale toepassing ervan ook geleid tot een verarming in het diagnostisch handelen en denken.

De kunst van het goed kijken naar patiënten en de fenomenologische en diagnostische kennis, die in 200 jaar gedifferentieerd Europees denken in de psychiatrie werd opgebouwd, dreigen door de overweldigende eenvoud van classificatiesystemen als de DSM-III tot voorwetenschappelijke curiositeiten te worden gemarginaliseerd.

In dit proefschrift over de kraambedpsychosen wordt een poging gedaan te demonstreren dat met behoud van de voordelen van de DSM-III benadering een meer verfijnde en op de klinische realiteit geënte fenomenologische classificatie en diagnostiek mogelijk is. Naast diagnostiek en classificatie komen tevens epidemiologie, risicofactoren, behandeling, beloop op korte en lange termijn en preventie aan de orde.

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CHAPTER I

**PSYCHIATRIC DISORDERS POSTPARTUM,
A HISTORICAL OUTLINE.**

PSYCHIATRIC DISORDERS POSTPARTUM, A HISTORICAL OUTLINE.

Introduction.

The observation that a relationship may exist between childbirth and the onset of mental disorder is not a recent one; it was already mentioned in the classical writings of the ancient Greeks.

In fact, more "recent" scientific literature of the past 200 years contains a large number of publications on the subject, the descriptions and reflections of which often turn out to be remarkably relevant to our times. The more one studies these historical contributions in detail, the more one realizes that the basic questions that need to be answered today are the same as they were 150 years ago. Although there certainly have been some developments and the frontiers of our knowledge have been extended in some areas, it appears that, as in many areas of psychiatry, major questions relating to recognizable clinical entities and "hard" aetiological relationships are still unanswered.

Hence, the aim of this historical outline is to follow the evolution in thought of the "concept" of puerperal psychosis and related aetiological hypotheses.

In order to be able to follow the argument, the works of a relatively small number of influential authors will be discussed. In addition, a number of Dutch authors will be introduced who have set their mark on the situation in the Netherlands.

For a more detailed overview of the literature concerning the period between 1835 and 1960, the reader is referred to J.A. Hamilton (1), who has devoted an extensive and almost complete discussion to these publications.

Finally, the recent contributions to our knowledge of postpartum mental disorder will be summarized and the main objectives of this study will be outlined.

Historical contributions.

Hippocrates (400 b.C.)

The first clinical description of a postpartum psychiatric syndrome was made by Hippocrates in the fourth century B.C. In his third book of the Epidemics, he describes the case of a woman who gave birth to twins and then six days later began to suffer severe insomnia and restlessness. On the eleventh day she became delirious and then comatose. On the seventeenth day she died.

He indicated two possible mechanisms in the aetiology of this psychiatric syndrome:

As a first possibility he mentioned that lochial discharge, when suppressed, could be carried toward the head and result in agitation, delirium and attacks of mania.

As a second possible mechanism he mentioned that when blood collects at the breast of a woman it indicates madness. (Quote from Hippocrates given by Hamilton, (1))

Hippocrates' ideas persisted for over 2000 years and, indeed, formed the basis for the distinction still made in the nineteenth and early twentieth century between puerperal and lactation psychoses.

The mechanisms described of fluids being carried (or rising) towards the head can still be found in a popular Dutch expression for madness: "Het is hem naar het hoofd gestegen" (It has risen to his head).

J.E.D. Esquirol 1838

The more systematic study of puerperal psychoses was initiated by the French psychiatrist Esquirol. In 1838 he published his classical book: "Des maladies mentales"(2). This work became one of the basic psychiatric textbooks of the nineteenth century. Esquirol devotes a complete chapter of his book to the subject of puerperal insanity. In this chapter called "De l'aliénation mentale des nouvelles accouchées et des nourrices" he describes the patients he treated in "L'Hospice de la Salpêtrière" in Paris during the Napoleonic era.

He begins his argument with the observation that the number of women who become psychotic after childbirth, or during breast feeding, is far larger than is generally thought. He also remarks that puerperal insanity makes an important contribution to the overall psychopathology among women. Of 1119 women admitted to the Salpêtrière during the years 1811 to 1815, 92 (8%) were admitted in connection with a puerperal insanity. During the years 1812 and 1813 as many as 10% of the patients were admitted as a result of a psychiatric disorder connected with childbirth and lactation. At an earlier stage Esquirol had already noticed that in a great number of these patients the symptoms of mental illness emerged in the first weeks after childbirth.

He also observed that during the postpartum period the risk of women developing a psychotic

condition diminished as the moment of birth became more remote.

These observations made him presuppose a causal relationship between the process of childbirth and the development of psychoses. Although Esquirol based his hypothesis on hospital admissions, later epidemiological studies would prove that his conclusions as to the temporal relationship between the onset of psychosis and childbirth were correct.

In relation to clinical features and symptoms he indicated that women who become psychotic during lactation can be recognized from their typical facial expression (*facies*), without enlarging on this. Hence the question remains whether his observation is related to a symptom which was later to be described as "amentia" or "distressed perplexity".

He classified the 92 cases he studied as: *Démence* (8 cases), *Lypémanies* (*mélancolies*) et *Monomanies* (35 cases) and *Manies* (49 cases). However he also quotes Boerhaave who was said to have maintained that the various psychopathological syndromes occurring in the aftermath of childbirth should not be regarded as independent illnesses, but as different manifestations of one syndrome with a common cause.

There are a number of factors Esquirol maintained to be predisposing to puerperal mental illness. He considered a hereditary tendency to mental illness, previous episodes of mental illness following childbirth and an "extreme vulnerability" to be such predisposing factors.

On the basis of the findings in his patient group he also concluded that the age of the mother did not constitute a predisposing factor. The age of his patients with puerperal mental illness was not different from the age of women in the population, at childbirth.

With regard to the aetiology of the illness, Esquirol in particular disputes his predecessors' convictions that the disease was caused by so called "lactogenic metastasis". This idea of "lactogenic metastasis" in fact elaborates on the notions of Hippocrates, of fluids being carried towards other organs. It assumed that, due to a blockage in the breasts, milk accumulated in other organs (e.g. in the brain), resulting in "metastasis" filled with milk.

With regard to the course of the illness, he describes how eventually 58% of his patients recovered and were fit to return home. Of the total of 92 patients 19% recovered during the first 3 months, 23% in the second 3 months and 16% between 6 months and 2 years after admittance to hospital.

We may assume that this represents the natural course of the illness, particularly in view of the treatment he suggested. The treatment consisted of the application of leeches, epispastics (vesicants), a mustard poultice applied to the legs or the neck, supported by a mild sweat-inducing or purgative tea. Furthermore, lukewarm hip baths and in some cases hot hip baths were deemed to be an excellent addition to the treatment, especially when the illness threatened to become chronic. Esquirol advised against any heroic measures and quotes Boerhaave and Van Swieten who, as early as 1769, stated that

it was imperative to exercise the highest restraint when letting blood.

The second important 19th century contribution to the study of psychiatric disorders in the puerperal period was provided by a pupil of Esquirol: Louis Marcé.

L.V. Marcé 1858

In 1858 Louis Marcé published his life's work entitled: "Traité de la folie des femmes enceintes, des nouvelles accouchées et des nourrices" (3). In a monograph of almost 400 pages he elaborates on the psychiatric disorders occurring during pregnancy, the puerperal period and lactation. In his view, the puerperal period lasted until 6 weeks after childbirth.

He describes up to 44 patients who became psychotic during the puerperal period. Among these he found 29 cases of mania, 10 cases of melancholia, 5 cases of 'folie partielle' and 2 cases of 'affaiblissement intellectuel passager'.

Curiously enough these figures add up to 46 patients. A possible explanation may be that he observed an episode of both mania and melancholia in two patients and counted them in both categories.

When comparing the puerperal period and the period of lactation, he observes that in the puerperal period mania occurs three times as often as melancholia, whereas in the period of lactation (more than 6 weeks after childbirth) they occur in the same frequency.

In an effort to assess the incidence of the puerperal syndrome during his time, he is confronted by the phenomenon that all studies seem to indicate that the incidence of puerperal psychoses is low among the population, whereas some 10% of all women in psychiatric institutions were supposed to have become psychotic due to childbirth.

There are a number of factors Marcé indicates as predisposing to puerperal mental illness. These predisposing factors are: heredity, multi-parity (multiple pregnancy), advanced age at childbirth, previous psychotic episodes, a condition of exhaustion when giving birth, the gender of the child and the "morale" of the woman when giving birth.

Next, Marcé goes on to discuss whether puerperal mental illness, and in particular puerperal mania, has specific symptoms whereby it could be distinguished from psychoses which reveal themselves at other stages of life.

Altogether he quotes four symptoms from contemporary literature: 1. the characteristic facial expression of the patient (as mentioned by Esquirol), 2. the smell she is supposed to give off, 3. the presence of albumin in the urine and 4. the nature of thoughts and delusional content of the psychosis, which was supposed to be predominantly of an erotic nature.

One by one he rejects these ideas and concludes that puerperal mania does not differ in any way from the mania which presents itself at other stages of life.

Because Louis Marcé is quoted in contradictory fashions on this subject, a verbatim quote (pg. 204) clarifies his position.

"La manie puerpérale n'a, ni dans son délire ni dans ses symptômes physiques, rien qui lui soit spécial: aussi verrons-nous dans un instant que, pour la distinguer des cas de manie survenant dans des conditions ordinaires de santé, il n'est qu'un seul moyen, c'est de rechercher chez la malade les signes bien connus d'un accouchement récent, signes assez incontestables pour qu'ils puissent toujours tenir lieu des antécédents, si par hasard ces derniers venaient à manquer".

The same holds for the other psychiatric syndromes Marcé discerned at the time of childbirth, viz. "melancholia" and "folie partielle" which in his opinion have no specific clinical features to differentiate them from similar syndromes unrelated to childbirth. Summarizing, we may conclude that Marcé observed a clear relationship between the development of psychiatric disorders and childbirth, but rejected the idea of a specific puerperal syndrome which could be distinguished on the basis of clinical features from non-puerperal mental illness.

On the subject of prognosis, he describes how eventually two thirds of his patients suffering from puerperal mania made a complete recovery. Moreover, half his patients recovered within 5 weeks. This is quite a favorable prognosis compared to the figures of his contemporaries and compared to the results of later work.

Marcé discusses different methods of treatment. He recommends lukewarm baths as the most effective treatment. Apart from this, good results are described from the use of opium and camphor. Also purgatives and a laxative diet were supposed to produce favorable results. Bleeding would be suitable for patients of sanguine temperament, bloodshot eyes and rather strong pulse.

C. Furstner 1875

Fürstner's contribution is of the utmost importance. In his now classic "Ueber Schwangerschafts- und Puerperalpsychosen" (4) published in 1875 a detailed description is given of the symptomatology of the different psychiatric syndromes related to childbirth. In his 40-page article he discusses patients whom he treated as "Assistenz-Arzt an der Irrenabteilung der Königlichen Charité" in Berlin.

Based on careful observation of the symptomatology and the course of illness in 34 patients, he arrives at a classification which has consequences up to the present day. He distinguishes four psychiatric syndromes postpartum (i.e. onset within 6 weeks after childbirth): 1. puerperal mania, 2. puerperal melancholia, 3. delirium, 4. "das hallucinatorisches Irresein der Wöcherinnen".

He argues that puerperal mania and melancholia are not specific to childbirth, even if the symptom

"Verworrenheit" occurs regularly in both. Furthermore, he discusses that the delirium is caused by infections and excessive loss of blood.

Finally Fürstner clearly defines the category which he regards as specific to childbirth. This syndrome is described as a psychosis with acute onset (in the first weeks after childbirth), in otherwise healthy women. The clinical features are hallucinations, confusion (Verworrenheit), violent motoric excitement and agitation which sometimes passes into a period of stupor and mutism. The illness usually takes a course with remissions and exacerbations. He considers the sudden onset of visual and auditive hallucinations as the nuclear symptom, whereas he sees "Verworrenheit" as secondary to the development of hallucinations.

Verbatim the description of his "Hallucinatorisches Irresein der Wöcherinnen" is as follows:

"Recapituliere ich noch einmal den Verlauf dieser Erkrankungsform, so beginnt sie also nach unbedeutenden, vagen Prodromen mit einem acut einsetzenden, vorübergehend remittirenden Stadium hallucinatorischen Irreseins, das eine progressiv sich steigernde Verworrenheit und heftige motorische Erregung produziert; geht dann über in die zweite Periode, die charakterisiert ist durch ein stupides, stummes, auf pathologischen Sensationen beruhendes Verhalten, durch Fortbestehen von Sinnestäuschungen, die einerseits den Kranken in gewissem Grade verworren lassen, ihn zu gewaltsamen Handlungen fortreißen, andererseits nicht so dominierend sind, dass sie die Perception für äussere Vorgänge unmöglich machen."

Fürstner elaborates on the subject and discusses the fact that some of his patients only experience the first stage of the illness; that is: acute onset of visual and auditive hallucinations accompanied by 'Verworrenheit', restlessness and frenzy, which, in his opinion, is often erroneously classified as mania. This remark puts him 100 years ahead of the discussion as to whether or not it is justified to classify these acute confusional psychoses as part of the spectrum of manic-depressive illness.

The syndrome as described by Fürstner forms the historic core of the idea that there is a specific and phenomenologically descriptive recognizable puerperal psychotic condition, next to other puerperal syndromes (mania, melancholia and delirium) which also can be observed in non-puerperal conditions. The influence of Fürstner's work has possibly remained too limited due to the fact that in 1877, shortly after the publication of his article in the German-speaking area, a book was published by Ripping (5) bearing the title: "Die Geistesstörungen der Schwangeren, Wöcherinnen und Säugenden". This work of authority ignores Fürstner's classification. Ripping (Director der Rhein Prov. - Irren - Heilanstalt Siegburg), however, hardly elaborates on symptomatology and clinical features, but limits himself to reproducing well-known syndrome classifications.

Nevertheless, the concept adopted in Germany and the Netherlands of a specific puerperal psychotic condition can be traced back to Fürstner's work (6). The most important difference is the fact that in the later concept "Verworrenheit" is indicated as the nuclear symptom and not, as Fürstner made out, the visual and auditive hallucinations.

The above mentioned development also influenced Bonhoeffer (7), who included this "Verworrenheit" or "amentia" as a part of the symptomatic puerperal psychosis in his theory of the "Exogenen Reactionstypen".

Due to the important influence of Bonhoeffer's work in the Netherlands, "amentia" became more or less synonymous with a psychotic condition characteristic for the puerperal period with confusion (Verworrenheit, amentia) as the nuclear symptom.

Recent history

The most influential authors in the Netherlands were Carp (1937) and Rümke (1960).

Carp (8) had strong opinions about the diagnosis and classification of postpartum psychosis but also added to the etiological hypothesis. Two verbatim quotes illustrate his position:

"Voor het merendeel zijn het manisch-depressieve psychosen, welke herhaaldelijk atypische trekken en vooral catatoniforme verschijnselen vertonen. Dit verleidt verschillende onderzoekers, ten onrechte veelal de diagnose van schizofrene psychose hierbij te stellen".

"For the greater part these are manic-depressive psychoses which repeatedly show atypical traits and especially catatonic phenomena. This tempts many researchers to diagnose, often erroneously, schizophrenic psychosis".

"Dat delirante stoornissen van het amentia-type door zuiver psychogene factoren tijdens het begin van het puerperium ontstaan, schijnt mij zeker, al vormen deze gevallen ook niet de meerderheid. Zij kenmerken zich door een duidelijk aantoonbare inzinking van den bewustzijnsgraad, door een min of meer blijvend gevoelscontact met de omgeving en een sterk op de voorgrond tredende verbijsterheid bij de beleving van der IK-vreemde buitenwereld".

"That delirious disorders of the amentia-type can be caused by purely psychological factors during the early stages of the puerperium appears to be certain to me, although these cases are not in the majority. They are characterised by a clearly-demonstrable drop in the level of consciousness, a more or less intact contact with the surroundings and a predominant sense of bewilderment (perplexity) when experiencing the ego-alien outside world".

Rümke (9) agrees with Kreapelin whom he quotes to have said that psychiatric disorders connected with childbirth do not make up an "einheitliche" group, but frequently are "loosened up" schizophrenia and manic-depressive psychosis. On the other hand Rümke also states that : "A part of these illnesses have not been loosened up, but have directly been caused by the puerperium".

Rümke also ascertained that the improvement of physical and medical care in the puerperal period led to a decrease in the frequency of puerperal psychoses. From this he concludes that it is less probable that psychological factors are important in the development of these syndromes.

With the authors mentioned so far the basis is laid for a discussion which continues up to the present day. The literature of the late 19th and 20th century, of which Hamilton (1) has given an almost complete overview, can be divided roughly into two categories, viz.: 1. authors who stress the opinion that there is no psychiatric disorder characteristic of childbirth and ignore childbirth as a precipitating factor in these psychoses and 2. authors acknowledging the fact that childbirth acts as an important precipitating factor in the onset of psychoses, emphasizing that there is either a psychogenic or a biological aetiology. The latter authors can be subdivided in those asserting the existence of a specific puerperal psychotic disorder and those convinced that childbirth is merely a precipitating factor in the onset of psychoses also occurring in other periods of life.

The hypothesis that there is no psychiatric disorder which is characteristic of childbirth has been strongly supported during the past 100 years. Authors such as Strecker and Ebaugh (10), Boyd (11) and Fondeur (12) have argued against the concept of puerperal psychosis. These authors are mentioned separately because their work has been decisive in the removal of the term postpartum psychosis (or puerperal psychosis) from all modern classification systems.

In the D.S.M. III-R (13), the term "postpartum psychosis" can only be found under "Atypical psychosis", a classification included in the negatively delineated section: "Psychotic disorders not elsewhere classified". This section also includes categories such as "Brief Reactive Psychosis, Schizophreniform Disorder with good prognostic features, Schizoaffective Disorder and Induced Psychotic Disorder".

Some of the symptoms thought typical within the concept of puerperal psychosis such as "disorder of consciousness" i.e. confusion, disorientation and perplexity and rapid shifts from one intense affect

to the other have reappeared in the DSM III-R under Brief Reactive Psychoses. Symptoms such as confusion, disorientation or perplexity were also resurrected in DSM III-R as good prognostic features in Schizophreniform disorder. Although ICD - 10 (14) contains a section of "Mental and behavioral disorders associated with the puerperium" (F 53) it is included in this classificatory system only in recognition of the practical problems in developing countries of gathering sufficient details of the clinical picture to be able to classify it elsewhere. The specific comment given in ICD - 10 on the use of this category reflects the present majority opinion in the classification of mental disorders associated with childbirth:

"The inclusion of this category should not be taken to imply that, given adequate information, a significant proportion of cases of postpartum mental illness cannot be classified in other categories. Most experts in this field are of the opinion that a clinical picture of puerperal psychosis is so rarely (if ever) reliably distinguishable from affective disorder or schizophrenia that a special category is not justified. Any psychiatrist who is of the minority opinion that special postpartum psychoses do indeed exist may use this category, but should be aware of its real purpose ".

The comment in ICD - 10 is an illustration of the fact that the most important argument put forward in favour of the removal of puerperal psychosis from globally accepted descriptive classification systems, was and still is the assertion that puerperal psychosis is lacking specific clinical features. It is questionable whether this decision was based on a rational consideration, or whether it was based on a prejudiced interpretation of the facts due to exaggerated reductionistic tendencies in psychiatric nosology. Even the opponents of the concept continue to encounter "atypical" symptomatology in their clinical descriptions.

In the early days of this discussion (1937) there were also arguments arriving at the opposite conclusion, as is illustrated by some quotes from Karnosh and Hope (15):

"These historical items are being exhumed to show that in the pre-psychobiological era mental disorders associated with childbirth were respected as a definite clinical entity. This idea persisted even though Marcé in 1852 was asserting that such a concept was not justified. Current psychiatry does not look upon these psychoses as a group which merits a clear nosological classification".

In spite of this starting-point, however, they come upon the following in the course of their research:

"By far the most common denominator of these acute puerperal psychoses is a delirium; the more abrupt the onset the more profound is the clouding of the sensorium" ...

"It should be stated that most of the acute manias, many of the schizophrenic outbursts and a few of the depressed types contained a delirious element in the earlier phases but are not so recorded".

From this information Karnosh and Hope concluded that the symptomatology quite frequently points to an organic aetiology and they assumed an endocrinological background.

This clearly demonstrates the ambivalent position: on the one hand they claim that puerperal psychoses do not deserve a clear nosological classification (merely an organic brain-syndrome) but on the other hand they point to a specific childbirth related endocrinological aetiology, even in postpartum schizophrenia, mania and depression.

J.A. Hamilton (1962)

Hamilton (1) is the most outspoken defender of the concept of puerperal psychosis as a separate clinical entity. In an extensive work of 150 pages, he describes how the psychiatric problems associated with childbirth may present themselves in many different forms. He includes all syndromes postpartum in one concept of puerperal psychosis in which "distressed perplexity" is the connecting symptom. He also emphasizes that the variability of symptoms and syndromes is one of the key characteristics of the picture. A transition from for instance, a schizo-manic picture with perplexity to a depressed picture, or vice versa is considered by Hamilton as the variability of the picture. One could say he describes the concept of puerperal psychosis as a hydra-headed monster. Twenty-five years later (1988) he also emphasizes the "mercurial" course of the illness when describing patients with more elusive symptomatology not overtly psychotic to the untrained eye, who could suddenly become overtly psychotically aggressive towards their child.

The ideas of Hamilton also influenced the concept of puerperal psychosis as it is held in the Netherlands.

In relation to the nosology of puerperal psychoses, Hamilton takes such an outspoken position that a quote is appropriate:

"The classic instance of institutional stupidity in this area is the policy enunciated by the American Psychiatric Association which required that "postpartum psychosis" be expunged from

the official nomenclature".

Hamilton 1982 (16)

As to the aetiology of the illness he emphasizes the endocrinological changes in connection with the partus. In 1962 he initially expected a great deal from research into thyroid hormones. At a later stage he was involved in work on the influence of oestrogens on postpartum mental illness.

Aetiological hypotheses

Biological factors.

It seems only natural to suppose that the massive physiological and endocrinological changes in the aftermath of childbirth could underlie the sudden increase in psychoses during this period.

Therefore it is quite understandable that important research has been done in this field.

In an excellent recent article on the endocrine and biochemical studies of the past decades George and Sandler (17) reviewed the massive research that has been done on steroid hormones (progesterone, oestrogens, androgens and corticosteroids), the thyroid system, peptide hormones (B-endorphin, prolactin, vasopressin, oxytocin and growth hormone), neurotransmission systems (noradrenalin, dopamin and serotonin) and vitamins in postpartum mental illness.

In spite of their impressive work, they had to conclude that the results of endocrine and biochemical research in puerperal mental illness are not encouraging. Despite a profound feeling that hormones "have something to do with it" there is little positive data. Nonetheless, they conclude that careful clinical and laboratory studies are the key to the further unravelling and classification of puerperal illness.

There is one recent development in the field of biological hypothesis in postpartum psychosis that deserves special attention. In a prospective study Wieck et al (18) compared women at high risk of developing an affective psychosis postpartum (a history of bipolar or schizoaffective psychosis) with controls. In an effort to assess the sensitivity of dopaminergic receptors patients and controls participated in a hormone challenge test on the fourth day postpartum (Growth hormone response to the dopaminergic agonist apomorfine). The results showed that patients who suffered a recurrence of psychosis postpartum had significantly greater growth hormone responses than both the women at risk who remained well and the controls.

They concluded that the onset of affective psychosis postpartum was associated with increased sensitivity of dopaminergic receptors and suggested that this change in sensitivity may be modulated by oestrogens.

Psychological factors.

The hypothesis of a psychogenic aetiology in postpartum psychiatric syndromes was first proposed in 1928 by Zilboorg (19). He describes four patients for whom the psychosis took a malignant course and finds that the premorbid personality of all four could be described as schizoid. Hence, all four of them developed schizophrenic psychosis postpartum. He also found evidence of sexual dysfunctions previous to the onset of the illness. He claimed as the most important characteristic of these women that they were frigid and he suggested suppressed homosexuality.

In his later work (20, 21), he states that women who become acutely depressed after childbirth are subject to unconscious hostility towards the child. This would find its expression in suicidal and infanticidal intentions and ideas, especially during the first 48 hours following childbirth. Although it may be an accurate observation that suicidal and infanticidal ideation are part of the picture in postpartum depression he overextends the limits of his hypothesis when recommending that mothers should not be shown their child during the first 24 to 48 hours after birth. In his opinion, the presence of the child during the first 48 hours may prompt psychopathological reactions in the mother. Although he was the first to raise the issue, the actual contribution of Zilboorg to our understanding of the psychological processes in women with puerperal mental illness is limited.

Associated with the Dutch concept of puerperal psychosis or amentia was the idea that the premorbid personality of patients who experienced a classical puerperal psychosis was characterized by "psychasthenic" features as described by Janet (22).

This observation was often erroneously ascribed to Zilboorg. It is more probable that the roots of this assumption can be found in clinical observations and in a free interpretation of Hemphill (23) and Janson (24). Hemphill (1952) describes a personality that predisposes to experience puerperal depression as characterised by being anxious, dependent on others and having obsessive character traits accompanied by a rigid personality. In a controlled study Janson (1964) compared three categories, viz. women who developed a psychiatric disorder in association with childbirth (psychic partus insufficiencies), women who developed a psychiatric disorder not connected with childbirth (psychiatric patients) and healthy women (obstetric controls). His results showed that women with certain personality traits (attitudes), especially asthenic but also hysteroid and schizothymic, run a higher risk of experiencing psychotic problems in association with childbirth.

Seager (25), however, came to different conclusions in a study similar to that carried out by Janson. He concluded that women who developed a psychiatric disorder associated with childbirth did not differ in any respect as regards heredity or personality from women who developed psychiatric disorders unrelated to childbirth. Both categories, however, differed significantly from healthy women, in the sense that they carry a larger hereditary burden of psychiatric disorders and also the

premorbid personality more often reveals schizoid or anxiety-prone traits.

Summarizing the work of the authors mentioned, there is little reason to assume that only a psychasthenic personality would be a specific demonstrable risk factor for the development of psychiatric problems associated with childbirth. There are, however, clear indications that women who develop psychiatric problems associated with childbirth more often exhibit disorders in the premorbid personality than women who do not develop psychiatric problems associated with childbirth.

An outstanding contribution to the discussion concerning the aetiology of postpartum psychiatric syndromes was made by Melges (26). He studied 100 postpartum patients and compared them with controls in performance on a series of cognitive tests and E.E.G. analysis. He found no differences between these groups and concludes that these results militate against the existence of a toxic delirious state or organic brain syndrome. Simultaneously, however, he also made an inventory of the puerperal experience of these 100 patients, their past and present object relations and what they deemed to be their major conflicts. He took the verbalization of the patients at face value and his data therefore represent conscious reports and behavioral observations, without interpretations on unconscious factors or conflicts.

The most frequent psychological difficulties reported by the patients and considered by Melges a central precipitating stress were: 1. A conflict in assuming the mothering role, activated by caring for a helpless, relatively noncommunicative infant and 2. An ambivalent identification with the patients' own mothers, deduced from the patients' repudiations of their own mothers, their recognition of an increased tendency to behave similarly and their dread of becoming like their own mothers and 3. Accentuation of entrapment feelings. The arrival of the baby ensnared the mother in a marriage or social situation from which she could not escape without considerable loss. Melges finally concludes that in the aetiology of postpartum mental illness it may be fruitful to also hold a psychological hypothesis.

Recent developments

In particular in the field of epidemiology important progress has been made during the last 20 years. With regard to the incidence of postpartum psychoses all studies point to a rate of 1 to 2 per thousand childbirths (27, 28, 29).

For the non-psychotic postpartum depression this rate is about 1 in 10 (30, 31, 32).

Although the ancient Greeks had already asserted a causal relationship between childbirth and the onset of psychosis, it only recently became a scientific fact through epidemiological studies by Paffenbarger (28) and Kendell (29, 33-35). They demonstrated that childbirth is a very strong "psychotogenic factor" leading to a dramatic increase in psychiatric admissions in the first months after childbirth.

The risk of being admitted with a psychosis within 30 days of childbirth is increased 20 fold (2000%) compared with the period before pregnancy (35).

It is important to realize that there is no other life event which leads to such an increase in psychiatric admissions (37). In addition, the psychiatric admission rate remains higher (30%) for at least 2 years after delivery (35). During pregnancy psychiatric admission rates are significantly lower (35%) than the admission rates over the previous 15 months (35, 38). However, the fall in the admission rates for psychosis is only 12% (35).

It is clear that overall childbirth contributes considerably to the excess in psychiatric morbidity in women. Calculations on this contribution (38) revealed that if a woman has three children during her reproductive life, her risk of being admitted to a psychiatric hospital increases by at least 18%. Her risk of being admitted because of a psychotic disorder even increases by 75%, compared to a life situation without children. This figure illustrates the impact of childbirth on the onset of psychosis. There are a number of risk factors involved in postpartum psychosis. The first well-established risk factor is primiparity (27-29, 35). In psychotic disorders the risk for primiparae is twice as high as for multiparae. Kendell et al (29) also showed that this difference was too great to be accounted for by the avoidance of further pregnancies or the age of the mother. In (non-psychotic) postpartum depression the risk in primiparae is not higher than in multiparae (43).

The most important single risk factor in postpartum psychoses is a personal or family history of psychotic disorders, especially bipolar affective disorders (39, 40).

For women with a personal or family history (first degree relatives) of bipolar affective disorder the risk of psychosis in the postpartum period increases 100 fold, from 1 to 2 in 1000 to approximately 1 in 5 (40, 41). This is not the case in schizophrenia. There are no indications that childbirth is a specific risk factor in precipitating schizophrenia (35, 36).

The risk of recurrence of postpartum psychoses after subsequent pregnancies is in the same range as for bipolar disorder. Brockington et al (42) summarized the different studies on this issue and concluded that the risk is about 1 in 5 for each succeeding pregnancy.

The influence of psychological, social and obstetric factors on the risk of psychosis in the puerperium has also been studied (26, 29, 34, 35). Although these factors have less impact than the above mentioned risk factors there are strong indications that - not having a husband at the time of childbirth (divorced, widowed or single), Caesarian section and perinatal death of the child also enhance the risk of psychosis after childbirth.

The presented evidence allows the conclusion that in the aetiology of puerperal psychosis a pre-existing vulnerability plays an important role. In some (but not all) patients the nature of this vulnerability is genetically determined and is identical to, or closely linked to, a lifetime vulnerability to psychotic disorders, especially bipolar affective disorders.

Disturbances in premorbid personality and specific psychological, physical and psychosocial stressors also increase the risk but at the present stage seem to have less aetiological impact.

However, these facts do not justify the conclusion that postpartum psychoses are merely affective disorders precipitated by childbirth. Different types of psychoses sharing the same precipitating factor may occur in the postpartum period and it has certainly not been ruled out that one of these types may be specific to childbirth. Unravelling in detail the clinical features of postpartum psychoses and discussing the nosology on the basis of these clinical features will be one of the prime targets of this study.

Marcé society

At the beginning of the eighties, an important development took place in relation to the study of postpartum psychiatric disorders. With the founding of the Marcé Society, a forum was created where researchers could discuss their findings from fundamental scientific and clinical studies with each other. The aim of the Marcé Society was formulated as follows:

"An international society dedicated to improving the understanding, prevention and treatment of psychiatric disorders related to childbearing".

Apart from being a source of inspiration to many the Marcé Society has already led to the publication of two "comprehensive textbooks" (43, 44), edited by R. Kumar and I.F. Brockington. In these books, many elements concerning psychiatric postpartum disorders are discussed in the light of modern literature on the subject.

Besides the two authors mentioned above, another two authors have made an important contribution to research during the eighties. J.L. Cox clarified epidemiology, clinical features and the treatment of postpartum depressions. He also acknowledged the transcultural validity of the term "postpartum depression" (45).

The most fundamental push forward in the last ten years, however, came from R.E. Kendell (29, 33-35) who has clearly succeeded in extending the frontiers of our knowledge with his long-running series of publications on epidemiology, clinical features, treatment, course and classification of psychiatric disorders associated with childbirth.

Note:

The Research Diagnostic Criteria (RDC).

In this study the Research Diagnostic Criteria are used to classify the episodes of mental illness associated with childbirth. The RDC were developed by Spitzer et al. (46) to enable research investigators to apply a consistent set of criteria for the description (or selection) of samples of subjects with functional psychiatric illness. The RDC are generally accepted as the most adequate classification system in studies concerning postpartum mental illness. Especially the opportunity to use well defined subclassifications of affective and schizoaffective disorders and the fact that the RDC were designed to reduce false positives in a given category has made the RDC the world-wide accepted standard in research concerning these disorders. The ratings for the RDC may be based on a focussed clinical interview, a structured interview (the Schedule for Affective Disorders and Schizophrenia, SADS) or on detailed case record material.

References

1. Hamilton JA. Postpartum psychiatric problems. St. Louis: Mosby 1962.
2. Esquirol JED. De l'alienation mentale des nouvelles accouchées et des nourrices. In: Des maladies Mentales. Esquirol JED. Ed. J.B. Baillière. Paris. 1838
3. Marcé LV. Traité de la folie des femmes enceintes, des nouvelles accouchées et des nourrices. J.B. Baillière et fils. Paris. 1858
4. Fürstner C. Ueber schwangerschaft und puerperalpsychosen. Archiv. f. Psychiatrie, 1875: 5: 505-543.
5. Ripping LH. Die geistesstörungen der schwangeren, wöcherinnen und säugenden. Verlag von Ferdinand Enke, Stuttgart. 1877
6. Huhn A and Drenk K. Klinische einordnung und prognose der Wochenbettpsychosen. Fortschritte der Neurologie - Psychiatrie. 1973;41:7:363 - 377.
7. Bonhoeffer K. Die exogenen Reactionstypen. Archiv. f. Psychiatrie und Nervenkrankheiten, 1917: 58: 58-70.
8. Carp EADE. Psychosen op exogenen grondslag en geestelijke defect toestand. Scheltema & Holkema Amsterdam. 1937
9. Rümke HC. Psychiatrie II. Scheltema en Holkema. Amsterdam. 1960
10. Strecker EA and Ebaugh FG. Psychoses occurring during the puerperium. Arch. Neur. & Psychiat., 1926: 15: 239-252.
11. Boyd DA Jr. Mental disorders associated with childbearing. Am. J. Obst. and Gynec, 1942: 43: 148-165.
12. Fondeur MA, Fixsen C, Triebel WA and White MA. Post partum mental illness. Arch. Neurol. Psychiatry, 1957: 77: 503 - 512.
13. American Psychiatric Association. Diagnostic and statistical manual of mental disorders. 3rd. edn., revised. Washington DC: APA, 1987.
14. The ICD - 10 Classification of Mental and Behavioral Disorders: clinical descriptions and diagnostic guidelines. World Health Organization, Geneva 1992.
15. Kamosh LJ and Hope JM. Puerperal psychoses and their sequellae. Am. J. Psychiatry, 1937: 94: 537-550.
16. Hamilton JA. The identity of post partum psychosis. In: Motherhood and Mental illness. Brockington I.F. and Kumar R. Eds. Academic press. London. 1982
17. George A and Sandler. Endocrine and biochemical studies in puerperal mental disorders. In: Kumar R., Brockington I.F., ed Motherhood and mental illness 2. London: Butterworth & Co. 1988.
18. Wieck A, Kumar R, Hirst AD, Marks MN, Campbell IC, Checkley SA. Increased sensitivity of dopamine receptors and recurrence of affective psychosis after childbirth. British Med. J., 1991: 303: 613 - 616.
19. Zilboorg G. Malignant psychoses related to childbirth. Am.J. Obst. and Gynec, 1928: 15: 145-158.
20. Zilboorg G. Depressive reactions related to parenthood. Am. J. Psychiat., 1931: 10: 927-962.

21. Zilboorg G. The clinical issues of post partum psychopathological reactions. *Am. J. Obst. and Gynec.* 1957; 73: 305-312.
22. Janet P. Les obsession et la psychasthenie I - II. Aléan, Paris. 1903
23. Hemphill RE. Incidence and nature of puerperal psychiatric illness. *Brit. Med. J.*, 1952; 2: 1232-1235.
24. Janson B. Psychic insufficiencies associated with childbearing. *Acta Psychiatrica Scandinavica.* 1963 Supplementum 172:39.
25. Seager CP. A controlled study of post partum mental illness. *J. Ment. Sci.*, 1960: 106: 214-230.
26. Melges FT. Postpartum Psychiatric Syndromes. *Psychosom. Med.* 1968: 30:1: 95 - 108.
27. Thomas EL and Gordon JE. Psychosis after childbirth: ecological aspect of a single impact stress. *Am. J. Med. Sci.* 1959; 238: 363 - 388.
28. Paffenbarger RS. Epidemiological aspects of parapartum mental illness. *Br. J. Prev. Soc. Med.* 1964. 18: 189 - 195.
29. Kendell RE, Rennie D, Clarke JA, Dean C. The social and obstetric correlates of psychiatric admission in the puerperium. *Psychological Medicine* 1981; 11: 341 - 350.
30. Pitt B. Atypical depression following childbirth. *Br. J. Psychiat.* 1968; 114: 1325 - 1335.
31. Cox JL, Connor Y, Kendell RE. Prospective study of the psychiatric disorders of childbirth. *Br.J. Psychiat.* 1982; 140: 111 - 117.
32. Kumar R, Robson KM. A prospective study of emotional disorders in childbearing women. *Br. J. Psychiat.* 1982; 144: 35 - 47.
33. Kendell RE, Wainwright S, Hailey A, Shannon B. The influence of childbirth on psychiatric morbidity. *Psychological Medicine.* 1976, 6: 297 - 302.
34. Kendell RE. Emotional and physical factors in the genesis of puerperal mental disorders. *J. of Psychosomatic Research* 1985: 1: 3 - 11.
35. Kendell RE, Chalmers JC and Platz. Epidemiology of Puerperal Psychoses. *Brit. J. Psychiatr.* 1987; 150: 662 - 673.
36. Klompenhouwer JL and van Hulst. Classification of postpartum psychosis: a study of 250 mother and baby admissions in the Netherlands. *Acta Psychiat. Scand.* 1991; 84: 255 - 261.
37. Paykel ES. Contribution of life events to causation of psychiatric illness. *Psychological Medicine* 1978. 8: 245 - 253.
38. Pugh TF, Jerath BK, Schmidt WM, Reed RB. Rates of mental disease related to childbearing. *New England Journal of Medicine* 1963; 268: 1224 - 1228.
39. Whalley LJ, Roberts DD, Wentzal J, Wright AF. Genetic factors in puerperal affective psychoses. *Acta Psychiat. Scand.* 1982; 65: 180 - 193.
40. Bratfos O, Haug JO. Puerperal mental disorder in manic depressive females. *Acta Psychiatr. Scand.* 1966; 42: 285 - 294.
41. Reich T, Winokur G. Postpartum psychoses in patients with manic depressive disease. *J. Nerv. Ment. Dis.* 1970; 151: 60-68.

42. Brockington IF, Winokur G, Dean C. Puerperal psychosis.
In *Motherhood and Mental Illness*, I.F. Brockington & R. Kumar eds.
PP 37 - 68. Academic Press London, 1982.
43. Brockington IF and Kumar R. *Motherhood and mental illness*. Academic Press. London. 1982
44. Kumar R and Brockington IF. *Motherhood and mental illness 2*. London: Butterworth & co. 1988
45. Cox JL. *Postnatal depression. A guide for health professionals*. Churchill - Livingstone 1986 ISBN-0-443-03178-9
46. Spitzer RL, Endicott J, Robins E. Research Diagnostic Criteria, rationale and reliability. *Arch. Gen. Psychiatry* 1978; 35: 773 - 782. Update 1981. New York State Psychiatric Institute.

CHAPTER II

THE CLINICAL FEATURES OF POSTPARTUM PSYCHOSES:

**A DESCRIPTIVE STUDY BASED ON THE CASE-HISTORIES
OF 250 PATIENTS.**

J.L. Klompenhouwer, A.M. van Hulst, J.H.M. Tulen, M.L. Jacobs, B.C. Jacobs and
F. Segers.

**THE CLINICAL FEATURES OF POSTPARTUM PSYCHOSES:
A DESCRIPTIVE STUDY BASED ON THE CASE-HISTORIES
OF 250 PATIENTS.**

Introduction.

The symptomatology of postpartum mental disorders has been discussed for more than 150 years. The most detailed individual case-histories and descriptions of clinical features and symptoms date from the nineteenth-century (1 - 3).

The work of Kraepelin led to the crystallization of groups of individual symptoms into generally accepted psychopathological syndromes (or "disease entities"). In the decades that followed syndromal classifications were made and the art of making detailed case histories and descriptions of individual symptoms and course of the illness was abandoned. A rather simplified and reductionistic attitude towards the psychiatric nosology of psychotic disorders developed in which only two "disease entities" were accepted i.e. schizophrenia and manic-depressive disorder. In addition to this attitude the repudiation of etiological diagnoses and an alleged lack of specific clinical features contributed to the removal of postpartum psychosis from modern classificatory systems. The opinion that postpartum psychosis lacks specific clinical features has been challenged by a number of authors (4 - 7). They especially point to the fact that confusional symptoms (dis-orientation, confusion and perplexity) and the changeability of the picture are not adequately described by the usual nosological categories (4, 7, 8).

The purpose of this article is to give a detailed description of the symptomatology and clinical features of puerperal mental disorder. In describing these symptoms we will refer to the framework of generally accepted psychopathological syndromes as they appear after application of the R.D.C. classification (9), and to the classical concept of postpartum psychoses discussed in an earlier study (7).

Method.

The individual symptoms described in the case-registers of the patients admitted consecutively to the mother and baby unit of the Rotterdam University Hospital between 1967 and 1989 were subject to this study (N = 281). The cases studied here are identical to those described in an earlier study (7).

Patients with an onset of symptoms before delivery (n = 31) were excluded to make sure we were studying postpartum mental illness. The remaining patients all had an onset of symptoms within 3 months of delivery. The 250 admissions were derived from 238 patients. Twelve women were admitted twice because of a puerperal mental disorder. These second admissions were considered a separate case with regard to clinical features and classification.

The case-registers contained detailed day to day descriptions of the patients' behavior and verbalizations. Three times a day notes were made by qualified nurses on the patients' behavior, utterances, presented symptomatology, the content of conversations with the patient, attitudes towards the baby and other persons, thus covering an important part of behavior and experiences of the patients. Nurses were especially instructed not to give interpretations on behavior and symptomatology, but to give a detailed and exact description of the behavior and utterances of the patient. Notes were also made by doctors on psychiatric examination, anamnestic and heteroanamnestic information, biography, physical examination and course of illness.

The presence or absence of individual symptoms was scored retrospectively on a symptom checklist (see addendum) that was designed on the basis of the usual psychiatric symptomatology but also contained a number of items derived from the classical concept of puerperal psychosis as it is held in the Netherlands and discussed in an earlier study (7). A symptom-checklist had to be designed because an important part of the symptoms and clinical features aimed at in this study are not represented in any globally accepted symptom checklist. This is illustrated by the fact that symptoms such as disorientation, confusion, perplexity, depersonalization, misidentifications (misrecognitions of people) and thematic delusions (i.e. delusions related to mothering, labor and the child) are not adequately described in usual nosological categories and carry no weight in the classification according to RDC. A number of clinical features considered of primary importance in the management of these psychoses i.e. suicidal acts and ideation, aggressive acts and child directed aggression were also added to the checklist. The checklist was completed by items related to the course of the illness, i.e. the number of relapses and the so called kaleidoscopic picture (rapid changes in the presented symptomatology).

Due to the limitations of a retrospective and case-register study the symptom checklist did not

contain meticulous detail of individual symptoms such as "third person verbal hallucinations". Too much specific detail would have undermined the reliability of the score and as an extension of this the validity of the checklist. Therefore the items in this checklist are described in lesser detail such as "auditive hallucinations" for which practically all case registers contained more than sufficient reliable information.

If the presence or absence of the symptom could not be established with certainty the symptom was not scored (or scored dubious), resulting in a "missing value". The frequency of the symptom is expressed as a percentage of the number of cases in which the presence or absence of the symptom could be scored in a reliable way (valid case). The frequency of the number of "valid cases" lies between 92 and 100% for the various individual items. In this study the frequency of the symptom (the percentage of the patients in which the symptom was present) is presented in relation to the different classifications.

Symptoms and classification were evaluated by the first two authors after interrater sessions. For the symptom checklist an agreement of 90% was aimed at and reached. The reliability and reproducibility of the RDC classification was checked by calculating a coefficient of interrater agreement for nominal scales (10) yielding a K (Kappa) of 0.79.

In order to assess differences in the frequency of individual symptoms between classifications statistical tests (Chi-square, Fishers's exact test) were applied using the Statistical Package Social Sciences (SPSS/PC+). A p value less than 0.05 was considered indicative of a significant difference.

Results.

In order to be able to interpret the results from the R.D.C. classifications, as well as from the classical concept of puerperal psychosis the frequency of the individual symptoms is presented in relation to these classifications. The diagnostic breakdown of the sample according to the R.D.C. is presented in table I. The most relevant R.D.C. categories i.e. the first seven classifications in table I representing 220 cases of post partum mental disorder are discussed. That part of the sample that was originally given the classical diagnosis of puerperal psychosis (C.P.P.) is presented in this study as a separate classification to allow comparison between the different classificatory systems.

The classical concept of puerperal psychosis and its exact relation to and overlap with the R.D.C. classification is discussed in an earlier article (7). The patients concerned in this study were originally diagnosed with the classical concept of puerperal psychosis in mind. Of each individual

symptom a figure is presented reflecting the relationship between the frequency of the symptom (the percentage of the patients in whom the symptom was present) and the different classifications.

Table I.

N = 250

		n	% of sample	
1	Schizophrenia (Schiz.)	12	4.8%	
2	Schizoaffective depression (S-A.D.)	12	25.2%	53.6%
3	Schizoaffective mania (S-A.M.)	51		
4	Manic disorder	27	12.4%	
	Hypomanic disorder (Manic)	2		
	Bipolar	2		
5	Major depressive disorder (Maj. D)	19	16.0%	
6	Minor depressive disorder (Min. D)	21	29.6%	
7	Unspecified functional psychosis (U.F.P.)	74		
8	Generalized anxiety disorder	4	12.0%	
9	Labile personality	2		
10	Obsessive-compulsive disorder	1		
11	Other mental disorder	21		
12	Unclassifiable	2		

Disorientation, confusion and perplexity.

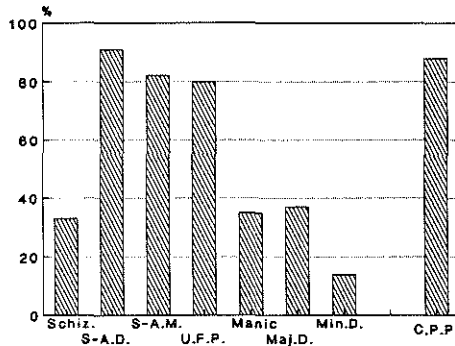
The frequency of confusional symptoms (disorientation, confusion and perplexity) in relation to the different classifications is presented in Fig. I. These symptoms are prominent features in schizodepression (S-A.D.) 90%, schizomania (S-A.M.) 82% and unspecified functional psychosis (U.F.P.) 80%. This is an important observation as this set of symptoms is of no importance in bringing about the R.D.C. classification. They are found in much lower frequencies in the R.D.C. categories that do fit the strict Kraepelinian definitions, i.e. schizophrenia (Schiz.) 33%, manic disorder (manic) 35% and major depression (Maj. D) 37%. Compared to schizophrenia disorientation, confusion and perplexity occurred in a significantly higher frequency in schizodepression ($p < 0.05$), schizomania ($p < 0.001$) and unspecified functional psychosis ($p < 0.01$). A significantly higher frequency of confusional symptoms in schizodepression, schizomania and unspecified functional psychosis was also found, compared to the frequency of these symptoms in mania ($p < 0.01$, $p < 0.001$ and $p < 0.001$ respectively) and in major depression ($p < 0.05$, $p < 0.01$ and $p < 0.001$ respectively).

A very high frequency (88%) was also found in patients with a classical diagnosis of puerperal psychosis (C.P.P.). This finding is self-evident as it is considered one of the nuclear symptoms within the classical concept of puerperal psychosis.

Although the exact temporal relationship between the onset of psychosis and the appearance of a "disturbance of consciousness" has not been recorded, it has been a constant observation during this study that disorientation, confusion and perplexity are early symptoms. They occur during the

first days and week(s) of the fullblown psychosis. These "disturbances of consciousness" are not constantly present but often have a fluctuating course with sometimes prolonged periods of clear consciousness. In retrospect patients usually have (partial) amnesia for the period they suffered from a severe impairment of consciousness.

Fig. I Confusional symptoms; disorientation, confusion or perplexity



The consequences of this finding may be far-reaching as our results indicate that confusional symptoms differentiate between the classifications according to RDC fitting the strict Kraepelinian order (schizophrenia, mania, depression) and the classifications with an intermediate position (schizoaffective disorders and unspecified functional psychosis). Despite the fact that confusional symptoms play no role in bringing about the RDC classification they appear to be relatively specific for schizoaffective disorders and unspecified functional psychosis. To a certain degree they discriminate strictly defined schizophrenia and affective disorders from "atypical" psychotic disorders.

Depersonalization:

In this study depersonalization and derealization are the most frequently observed psychopathological symptoms in patients with postpartum mental illness. These closely related phenomena are presented here as one symptom.

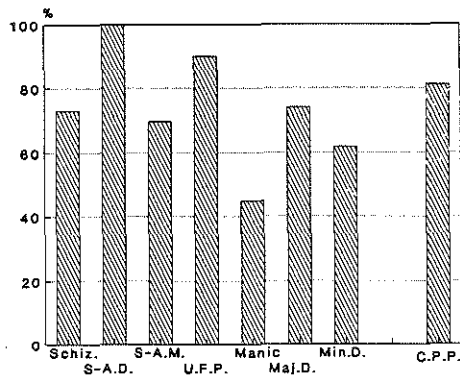
The symptom of depersonalization involves an alteration in the perception or experience of the self, which is experienced as if the usual sense of one's own reality is temporarily lost or

changed. Patients seldom verbalize the experience without explicit questioning.

Depersonalization is discussed immediately after "disturbances of consciousness" for it is considered probable that it lies on a continuum with perplexity. This assertion will be made plausible in the discussion, when comparing definitions.

It is demonstrated in Fig. II that the symptom is not specific to any of the classifications and may be present in both psychotic and non-psychotic disorders. Depersonalization occurs in more than 70% of patients in all classifications except minor depression (63%) and manic disorder (45%).

Fig. II Depersonalization



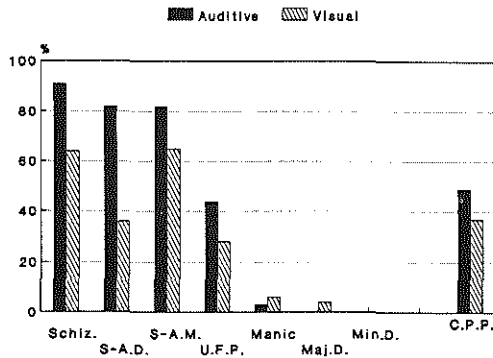
During the postpartum period depersonalization often also involves the incapacity of the patient to experience love and attachment for her child. The patient may feel as if she was not related to her child, or may experience the baby as if he (or she) was a doll. The incapacity to experience positive feelings for the child, due to depersonalization, frequently leads to the development of severe guilt feelings. The mere recognition of depersonalization phenomena as an important part of the picture in postpartum mental disorders may alleviate these feelings. Depersonalization can be particularly persistent and may torment patients long after the psychosis has disappeared.

Hallucinations.

As early as 1875 Fürstner indicated the importance of hallucinations in postpartum psychoses. He even pointed to hallucinations as the nuclear symptom of what he considered to be a specific

puerperal psychotic disorder (Das hallucinatorisches Irresein der Wöcherinnen). (3) In concordance with expectations auditory and visual hallucinations are prominent symptoms in schizophrenia (91% and 64% resp.), schizomania (82% and 65% resp.), schizodepression (82% and 36% resp.) and to a lesser extent in unspecified functional psychosis (Fig. III). Hallucinations also feature in about half the patients with a classical diagnosis of puerperal psychosis. When screening for auditory hallucinations all forms of auditory hallucinations were scored, that is, not only verbal hallucinations but also non-verbal hallucinations such as: hearing a baby cry, sirens howl, screams, etc. Hallucinations were also scored irrespective of their duration; even short lasting hallucinations are presented here.

Fig. III Auditive and Visual hallucinations



Visual hallucinations were particularly frequent in schizophrenia and in schizomania. It is illustrated in fig. III that these symptoms are hardly discriminating between individual syndromes except if one wishes to separate strictly defined affective disorders from other psychotic disorders (including schizoaffective disorder). In this respect hallucinations appear to reflect their discriminative power within the R.D.C.

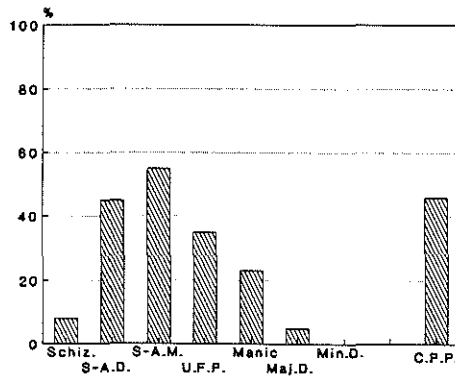
Misrecognitions.

Misrecognition of people is one of the symptoms derived from the classical concept of puerperal psychosis. It has no part in bringing about the R.D.C classification. According to the classical

concept typical misrecognitions were confusing husband and father or identifying male nursing staff as father or husband. From a psychodynamic point of view confusing father and husband was interpreted as the expression of one of the underlying unconscious psychological conflicts. It was also considered an indication that psychological factors may be of aetiological importance in these psychoses.

However the appearance of this symptom may also be related to confusional symptoms and/or perceptual disturbances. It is illustrated in fig. IV that this symptom frequently occurs in schizomania (55%), schizodepression (45%) and unspecified functional psychosis (35%) in contrast to classifications fitting the strict Kraepelinian order i.e. schizophrenia (8%), manic disorder (23%) and major depression (5%). Compared to schizophrenia, misrecognitions were significantly more prevalent in schizomania ($p < 0.01$). Although there was a trend in the same direction, the difference did not reach statistical significance in schizophrenia compared to schizodepression ($p = 0.059$) or in schizophrenia compared to unspecified functional psychosis ($p = 0.056$). A significant higher frequency of misrecognitions was also found in schizomania compared to mania ($p < 0.01$), but it was lacking in mania compared to schizodepression and in mania compared to unspecified functional psychosis.

Fig. IV Misrecognitions



A comparison of the frequency of misrecognitions in major depression compared to schizodepression, schizomania and unspecified functional psychosis revealed a significant higher frequency of misrecognitions in the latter classifications ($p < 0.05$, $p < 0.001$ and $p < 0.005$, respectively).

Again we come upon a clinical feature with no impact in the RDC classification appearing in a significantly higher frequency in the classifications which do not fit the narrow Kraepelinian definitions of schizophrenia and affective disorders.

The relatively high frequency of misrecognitions found in the classical diagnosis of puerperal psychosis (46%) is self-evident as this symptom is considered part of its diagnostic profile. (4)

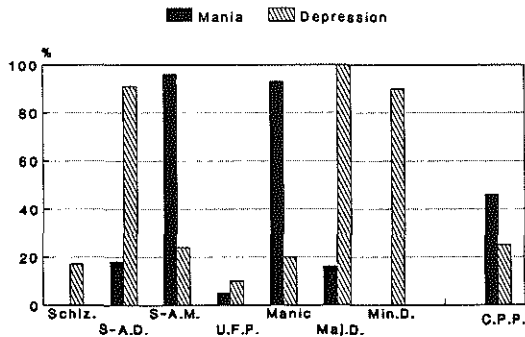
Mood; mania and depression.

These symptoms are highly discriminative within the R.D.C. classification, as is reflected in Fig. V. The observation that the symptom depression is not scored in 100% of the cases in schizodepression and minor depressive disorder (Min.D), is explained by the fact that patients were satisfying all criteria of a depressive syndrome but were not capable (mostly due to massive depersonalization) to express that they felt depressed.

In the case of schizomania and manic disorder there is a similar explanation. In these cases patients were satisfying all symptoms of a manic syndrome but dysphoria was the prevailing mood and not mania.

It is illustrated in Fig. V that affective symptomatology is also part of the classical concept of puerperal psychosis, although it is not considered a specific symptom. Mania was more often associated with this concept than depression. Fig. V also illustrates that except for the R.D.C. classification schizophrenia and unspecified functional psychosis mood disorders are prominent symptoms in postpartum mental disorder.

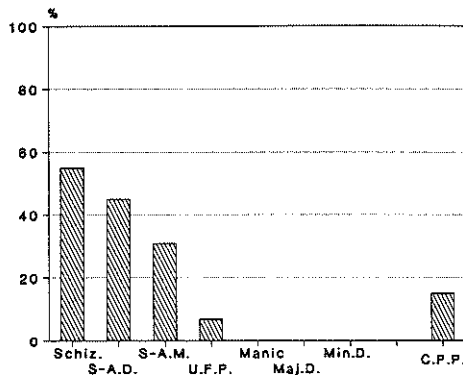
Fig. V Mood; mania and depression



Thought disorder.

This symptom was defined as in the R.D.C. (3) It includes thought-broadcasting, -insertion, -withdrawal, delusions of being controlled, bizarre delusions, multiple delusions, incoherence, neologism etc. As is illustrated in Fig. VI this symptom is almost completely restricted to schizophrenia (55%), schizodepression (45%) and schizomania (31%) as was to be expected from the R.D.C. classification. Just as in hallucinations this symptom appears to reflect the severity of the psychotic condition and seems to separate strictly defined affective disorders from other psychotic conditions.

Fig. VI Thought disorder



In this respect thought disorder reflects its discriminative power within R.D.C. The frequency of thought disorder in the different classifications (Fig. VI) is more suggestive of a continuum of psychoses (with schizophrenia at one extreme and affective disorders at the other) than of clear boundaries between the individual R.D.C. syndromes.

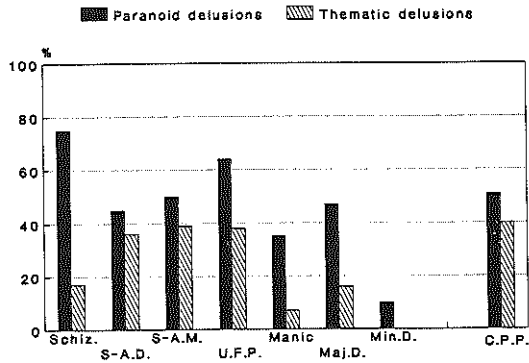
Delusional content.

Delusions of grandeur and nihilistic delusions were scored as separate items but are not presented in a figure. Within expectation, delusions of grandeur are frequently part of the picture in manic disorder (63%) and schizomania (47%). In none of the other classifications according to RDC did

it exceed 17% (schizophrenia) of the cases.

Nihilistic delusions were frequently encountered in schizodepression (36%) and major depression (47%) and occurred in much lower frequencies in other classifications according to RDC. The frequency did not exceed 12% (schizomaniac) in the other classifications.

Fig. VII Paranoid and thematic delusions



Thematic delusions.

According to the classical concept of puerperal psychosis the delusional content of these psychoses was determined by the psychological impact of the life-event on the patient. Delusions considered typical were related to mothering, labour or the child. It was thought to be the expression of underlying psychological conflicts, especially in assuming the mothering role, in women with an immature personality. In the psychological explanation of this "maturity-crisis" unresolved conflicts in the relationship with the patients' mother play a key role (8).

In these women childbirth would represent a sudden confrontation with unresolved and unconscious conflicts, mostly related to early object relations. This massive confrontation would cause defense mechanisms to fail and result in regression and psychosis. The failure of defense mechanisms would make it possible for the unconscious material to surface in the form of delusions concerning the mother role, the child and delivery.

With this explanation in mind thematic delusions were interpreted as a confirmation of the

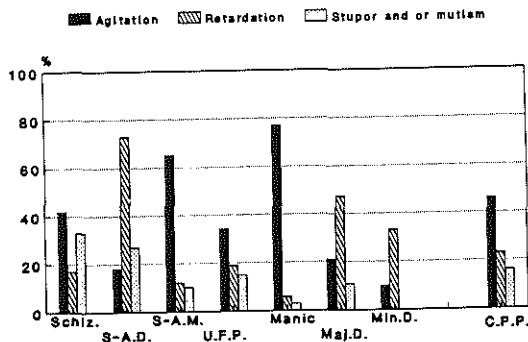
psychogenic (or reactive) aetiology in these patients.

If we compare the different types of delusion in Fig. VII the general picture is that paranoid (persecutory) delusions are much more common than thematic delusions even in the C.P.P. It can be concluded that paranoid delusions are more "typical" of postpartum mental disorder in general than thematic delusions. On the other hand compared to paranoid delusions, thematic delusions occur infrequently in schizophrenia (17%), manic disorder (7%) and major depression (16%) but are observed in considerably higher frequencies in schizodepression (36%), schizomania (39%) and unspecified functional psychosis (38%), again in those classifications that do not fit the strict division between schizophrenia and affective disorders. Compared to mania a significant higher frequency of thematic delusions was found in schizodepression ($p < 0.05$), schizomania ($p < 0.001$) and unspecified functional psychosis ($p < 0.001$). However, the differences between the latter three classifications and schizophrenia or major depression did not reach statistical significance. These results do not allow an unequivocal judgment about the value attributable to thematic delusions. Even if we insist on a psychological explanation of thematic delusions these results only allow the conclusion that psychological factors may be of importance in a subgroup of patients mainly represented by a minority of schizoaffective disorders and unspecified functional psychosis according to RDC.

Psychomotor disturbances.

The symptoms scored i.e. agitation, retardation and stupor/mutism are important features in both the classical concept of puerperal psychosis and in the RDC classification. (Fig. VIII). Agitation is a prominent symptom in classifications including a manic syndrome, i.e. manic disorder (77%), schizo-mania (65%) and to a lesser extent in schizophrenia (42%). It also is a common feature in patients with a classical diagnosis of puerperal psychosis (46%).

Fig. VIII Psychomotor disturbances : agitation, retardation, stupor and mutism



In accordance with the RDC-classification retardation is found to be an important symptom in classifications including a depressive syndrome i.e. schizodepression (73%), major depression (47%) and minor depression (Min. D. 33%). Stupor and mutism are symptoms occurring in severely psychotic patients i.e. schizophrenia (33%), schizo-depression (27%), but in general do not dominate the clinical picture in these classifications. They are less frequent in puerperal mental disorder than agitation or retardation. Although stupor and mutism are considered important symptoms within the classical concept of puerperal psychosis they are only present in 16% of the cases.

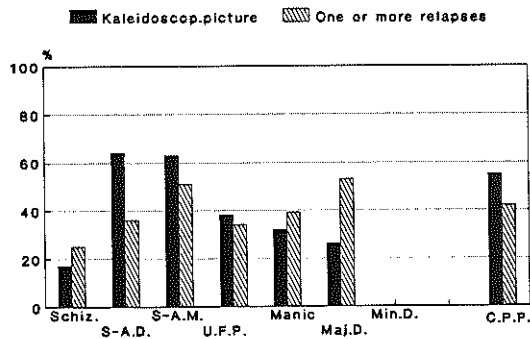
The course of illness, relapses and kaleidoscopic picture.

The changeability of the picture.

This item on the course of the illness was also derived from the classical concept of puerperal psychosis. It refers to the changeability of the presented symptoms and syndromes in the course of the illness (hours and days). Hamilton (4) also stressed that the changeability of the picture was an important characteristic of these psychoses.

According to the classical concept rapid shifts appeared in the level of consciousness i.e. disorientation, confusion and/or perplexity, secondary carrying along psychotic manifestations and mood swings, but also led to symptom-free intervals. These symptom-free (or lucid) intervals gave the illness an insidious image. It could easily lead to unwarranted optimism about the condition of the mother and consequently to dangerous situations for the child if the mother was not supervised in the contacts with her child.

Fig. IX Kaleidoscopic picture and relapses in the course of recovery.



It is illustrated in Fig. IX that this frequently changing scene or "kaleidoscopic picture" is an important feature in schizodepression (64%) and schizomania (63%). In considerably lower frequencies it is also part of the picture in unspecified functional psychosis (38%) and manics (32%). Lower frequencies are found in schizophrenia (17%) and major depression (26%). In minor depression this phenomenon is not encountered at all. Compared to schizophrenia the "kaleidoscopic picture" was significantly more found in schizodepression ($p < 0.05$) and schizomania ($p < 0.05$) but not in unspecified functional psychosis.

A significantly higher frequency was also found in schizomania ($p < 0.01$) compared to mania and in schizomania ($p < 0.01$) compared to major depression. The comparison of both mania and major depression to schizodepression and unspecified functional psychosis did not reveal statistically significant differences. Again we come upon a clinical feature that plays no role in bringing about the classifications according to the R.D.C. but appears to be relatively specific for schizomania compared to strictly defined schizophrenia, mania and depression. The "kaleidoscopic picture" is also frequently part of the picture in schizodepression and unspecified functional psychosis. The relatively high frequency found in the classical diagnosis of puerperal psychosis (55%) is self-evident as it is considered one of the discriminatory features in this classification.

Relapses in the course of recovery.

This item is partly connected to the previous, as it deals with the stability of the presented picture and the course of the illness. A relapse was scored if the patient was improving and was stabilized on a level close to recovery for at least two weeks and then suddenly relapsed. If a patient had more than one relapse during recovery only the first was scored here. It can be seen in Fig. IX that relapses are frequently part of the picture in all classifications with a low relapse rate in schizophrenia (25%) and the highest rate in schizomania (51%) and major depression (53%). It is a striking observation that in minor depression relapses are completely absent. All other classifications according to RDC have a relapse rate varying from 34 to 39%.

Most of the relapses in this study occurred without major change in treatment or medication. Although the number of relapses is undoubtedly also influenced by treatment variables these results underscore that prudence and patience are absolute requirements in the management of postpartum psychoses. Discharging the patients from hospital immediately after an apparent recovery without taking the time for a longer period of stabilization (approx. 4 weeks) followed by a well organized outpatient care puts the patient and her child at risk.

It can be concluded that, except for minor depression, postpartum mental disorders frequently (40%) follow a course with remissions and exacerbations.

Brockington et al (11) observed a relationship between the occurrence of a relapse in patients with puerperal psychosis and the onset of the first menstrual period. In a relatively small number of patients they observed exclusively menstrual-cycle related relapses. Of the eight patients they describe five had a repeated premenstrual relapse.

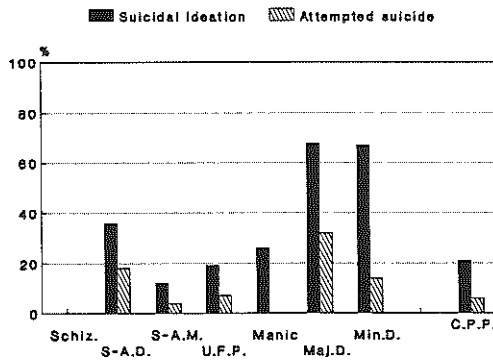
Although in our study the exact relationship between the menstrual cycle and the occurrence of relapses was not recorded it was a clinical observation that relapses occurred in the premenstrual period in some patients but not in all. Our results also point to the fact that relapses are common (40% of the patients) in the course of recovery of puerperal psychosis. Nevertheless it is an intriguing suggestion that menstrual cycle related changes may effect the course of the illness. This finding is interpreted by Brockington et al as supporting a hormonal aetiology for postpartum psychosis (11). However it could also be interpreted as a late luteal phase exacerbation of a psychotic (mood) disorder. The latter interpretation explains these findings as an epiphenomenon rather than as having a direct relationship with the aetiology of the primary disorder.

Suicide.

It is important to assess the risk of suicide in these patients. Suicidal thoughts are frequently present but not always expressed without explicit questions on this subject. This is one of the symptoms (the others were depression and depersonalization) in which the minor depressive disorder classification scores very high.

It is illustrated in Fig. X that both suicidal ideation and suicide attempts are frequently seen in all classifications that include a depressive syndrome, i.e. schizodepression (36% en 18% resp.),

Fig. X Suicidal ideation and attempted suicide



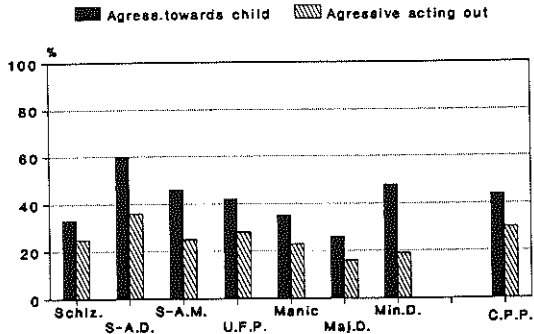
major depression (68% and 32% resp.) and minor depression (67% and 14% resp.). These results indicate that patients with postpartum psychosis are at high risk of suicide, especially when the picture includes a depressive syndrome. The most remarkable finding is that even patients with a non-psychotic depression (minor depression) frequently consider suicide.

Most of the suicide attempts took place before hospitalization and may be the reason why patients were hospitalized in the first place. Therefore the high frequency of suicidal ideation and suicide attempts found in minor depression may not be representative of postpartum minor depression in non-hospitalized patients. Still, as it is a well established fact that of all women giving birth to a child approximately 10% will eventually suffer from a postpartum depression (12 - 14), even a much lower frequency of suicidal thoughts than the 67% found here represents a tremendous number of women at risk and tormented by existential despair. These suicidal thoughts and acts are related in part to aggressive fantasies about the baby and may have an obsessional character. Aggressive fantasies and thoughts frequently encountered in these patients are throwing the child on the floor, drowning the baby when bathing, beating the baby against a wall or dropping the baby when holding it. The presence of such fantasies and their compulsive character (the incapacity to clear the mind from these thoughts), may cause the mother to become so desperately guilt ridden that suicidal thoughts occur. Especially within the context of a severe depression, she may develop the conviction that her baby and husband would be better off if she died or, even worse, if both she and the baby died.

Aggression.

It was presupposed that a relationship may exist between aggressive fantasies and acts against the child and suicides.

Fig. XI **Agressive acting out and child directed agression**



It is illustrated in Fig. XI that aggressive thoughts, feelings and acts against the child are not restricted to classifications including high percentages of patients with suicidal tendencies but are frequently seen in all classifications. The highest frequencies of child directed aggression however are still found in schizodepression (60%) and minor depression (48%). These classifications are closely followed by schizomania (46%), unspecified functional psychosis (42%) and manic disorder (35%). Surprisingly the lowest frequency of child directed aggression is found in major depression (26%).

That patients do not only talk and have fantasies about aggression is illustrated by the fact that, for the different classifications, between 16% and 36% of the patients will eventually strike aggressively. Overall aggressive acting out occurs in approximately 25% of the patients. In a majority of these patients (15% of the whole sample, n = 37) aggressive acting out was directed against the child. It is an arresting observation that aggressive fantasies and acts are not restricted to psychotic disorders but are also frequently seen in (non psychotic) minor depression. Again the frequency of aggressive acts towards the child we find in minor depression may not be representative for postpartum depression in non-hospitalized patients.

To give an impression of the different violent acts involved, the number of violent acts and threats directed against the child are presented in table II. The total number is higher than the 37 patients involved due to the fact that individual patients may have scored on more than one of these items.

Table II.

* Throwing, beating, biting or otherwise wounding the baby.	n = 12
* Making an attempt to drown the baby.	n = 5
* Attempting to bath the baby in hot water.	n = 2
* Making an attempt to strangle the baby.	n = 4
* Extreme neglect of the baby.	n = 4
* Menacing to kill or wound the baby.	n = 12

Although none of the 250 patients presented in this study committed infanticide a few extremely dangerous situations occurred in which the child was saved by mere chance. Although rare, the risk of infanticide is real in postpartum mental illness.

In practically all cases discussed here child abuse took place before hospitalization of the patient. It stresses the fact that patients with a postpartum mental disorder need supervision and treatment and that even in minor depression the risk of both suicide and child directed aggression must be carefully evaluated.

Discussion.

We shall first address of the issue of a "disturbed state of consciousness" including the definitions of disorientation, confusion, perplexity and depersonalization and their relationship. In the second part of this discussion we will elaborate the findings of this study and its consequences for both the nosology and management of postpartum mental illness.

Psychiatrists find it very hard to give an exact definition of the concept of a disturbed state of consciousness. Basic problems already emerge with a definition of a clear (non- disturbed) consciousness. Both simple definitions (a) and more elaborated (b) one's have been given:

a. Consciousness is awareness of the self and the environment (15).

b. Consciousness has been defined as the distinguishing feature of mental life. It is synonymous with the quality of being aware and of having knowledge. Thus, it is a faculty of perception that draws on information from the outer world directly through the sense organs and indirectly through stored memory traces. Implicit in the concept of full consciousness is the capacity to understand information and to use it effectively to influence the relationship of the self to the environment (16).

Even under normal (non-pathological) conditions the state of consciousness is extremely variable i.e. exists on a continuum in which sleep, alert waking, daydreaming, mental concentration on tasks etc. all find their place.

Aggernaes (17) asserted that the most important characteristics of a disturbed state of consciousness was the inability of the patient to change the state voluntarily.

Although it is not difficult to conceptualize the difference between unconsciousness and full awareness, it is all the more difficult to find useful definitions for the disturbed states in between, especially if they are of a non-neurological and more elusive nature. Abandoning the whole concept however, due to definition problems, would be like denying the difference between day and night because of problems in explaining where twilight begins and dusk ends. In modern classification systems the concept was almost completely ignored and evaded due to problems in definition and poor conformity. In the last decades the term was mainly used in relation to organic brain syndromes. In the older European nosology a disturbance of consciousness was recognized as an important symptom of psychogenic (or hysterical) psychosis (18). The same symptom nowadays is described as a "dissociative" phenomenon. The concept of "confusional symptoms" in functional psychosis seems to have survived this period of disregard in the Scandinavian concept of psychogenic psychosis (19, 20) and in the concept of cycloid psychosis (21, 22). Under the heading of reactive psychosis and schizophreniform psychosis with good prognostic features, such

symptoms as confusion and perplexity were recently resurrected and found their way back into a globally accepted classification system (D.S.M. III-R) (23).

With the present state of the art it is generally accepted that in "functional" psychiatric syndromes symptoms such as disorientation, confusion and perplexity may be part of the picture. As part of the criticism concerning the use of the concept of a disturbed state of consciousness is that it is based on the absence of clear definitions, we shall first give definitions of the terminology as used here in relation to postpartum mental illness. We consider the differences to be gradual, with disorientation as the most advanced form and perplexity as the lesser form of disturbance of consciousness.

Disorientation is the inability of the patient to orientate in time, place or person.

Confusion is the inability to think clearly, due to the fact that mental processes are (experienced to be) inaccessible or in a chaos.

Perplexity is a state in which the patient is incapable of making out the explanation for perceptions and other experiences which seem to her unusual and incomprehensible. The attention of the patient is focused on the experience of both the internal and external world. She looks amazed, puzzled and bewildered and is trying to grasp reality (that is; desperately trying to understand and integrate events, perceptions and experiences) without succeeding. Reality testing fails.

Panxiety is frequently an accompanying symptom.

The difficulty in finding exact boundaries in this subject is illustrated by the fact that in the 9th edition of the Present State Examination (PSE Wing, Cooper and Sartorius) (24) a definition of perplexity is given (from which our definition is an adapted version) that requires a clear consciousness. A clear consciousness in the PSE definition seems to be synonymous to clear perception, while in the definitions we have given a clear consciousness exists when both a clear perception exists and "the capacity to understand information and to use it effectively" is intact. It is self-evident that in view of the definitions of consciousness and perplexity we have given, the requirements of a clear consciousness in a definition of perplexity would create a "contradictio in terminis". In spite of this confusion of thought the definitions given provide an acceptable base for the use of the terms disorientation, confusion and perplexity in "functional" psychoses.

In this study depersonalization and derealization are the most frequently observed symptoms in postpartum mental disorder, irrespective of the classification. These closely related phenomena are presented as one symptom. In D.S.M. III-R (23) depersonalization is defined as follows:

The symptom of depersonalization involves an alteration in the perception or experience of the self in which the usual sense of one's own reality is temporarily lost or changed. This is manifested by a feeling of detachment from, or being an outside observer of, one's mental processes, body or a

feeling like an automaton or as if in a dream. Various types of sensory anesthesia and a sensation of not being in complete control of one's actions, including speech are often present. All of these feelings are ego dystonic, and the person maintains intact reality testing.

Depersonalization is a common phenomenon that may occur in healthy individuals especially under conditions of stress and lack of sleep (25, 26), but has also been described as an accompanying symptom in patients with depressive disorders and insecure, anxiety prone and obsessive personality traits (27, 28). Roth (27) also observed that depersonalization most frequently occurs in a setting of "stress precipitated anxiety". This symptom is often too easily attributed to simple psychological mechanisms (29). However "disturbances of consciousness" as well as dissociative phenomena may have a variety of possible causes i.e. physiological, psychological, neurochemical and pharmacological. If the definitions of perplexity and depersonalization are compared it makes sense to interpret perplexity as an extreme form (loss of reality testing) of depersonalization (reality testing intact).

It can be concluded that the concept of disorientation, confusion, perplexity and depersonalization may be useful tools in the nosology and classification of "functional psychosis". Ignoring these phenomena or declaring them atypical and of no importance in nosology can be considered an inadequate approach and implies the loss of vital information on the exact clinical features of psychoses in general and puerperal mental disorder in particular.

In this study we have presented an important number of clinical features and their relation to different classifications of postpartum mental illness. The results of this study indicate that a number of symptoms derived from the classical concept of puerperal psychosis and with no impact in the RDC classification are important features in postpartum psychotic illness. Some of these features were significantly more prevalent in specific subclassifications of RDC i.e.: schizoaffective disorders and/or unspecified functional psychosis.

These "distinguishing features" i.e. confusional symptoms, misrecognitions, thematic delusions and the "kaleidoscopic picture" are not adequately described within the usual nosological categories although it is probable that they are of primary importance in the classification of postpartum psychotic illness. Our results indicate that these clinical features (especially confusional symptoms) deserve a special status in classifying puerperal mental illness. Previous studies provided good evidence that patients with postpartum psychotic illness are more often "confused" than patients with non-puerperal psychotic illness (30 - 32)). Our study refines this observation by indicating that within the group of patients with postpartum psychotic illness, confusional symptoms occur significantly more often in schizoaffective disorders and unspecified functional psychosis than in classifications satisfying the narrow criteria for schizophrenia, manic disorder

and major depression according to the RDC.

Although the evidence is less strong than for confusional symptoms our results also indicate that misrecognitions are more frequent in schizoaffective disorders and unspecified functional psychosis than in schizophrenia and affective disorders. A significant excess in thematic delusions was found in schizoaffective disorders compared to affective disorders but not compared to schizophrenia. Finally, the "kaleidoscopic picture" was only found in a significant excess in schizomania (but not in schizodepression and unspecified functional psychosis) compared to schizophrenia and affective disorders.

If we make an attempt to integrate these findings in describing a puerperal psychotic illness, distinguishable from strictly defined schizophrenia and affective disorders on the basis of clinical features the following description of a puerperal psychosis would be tenable: "A confusional psychosis with acute onset in the first weeks following delivery, polysymptomatic in presentation i.e. in which features of schizophrenia, affective disorders and symptoms such as misrecognitions of people, the kaleidoscopic picture and thematic delusions are often prominent features, not satisfying the narrow criteria for schizophrenia, mania or major depression according to R.D.C.". Such a syndrome approaches the (life-event related) classical concept of puerperal psychosis (7) or the (life-time vulnerability related) concept of cycloid psychosis (21, 22, 33).

If we combine these results with the conclusive epidemiological evidence of a causal relationship between childbirth and the onset of psychoses (34, 35) it makes a strong case for a separate status for postpartum psychosis in modern classification systems. Although these findings do not prove the existence of puerperal psychosis as a specific syndrome they nevertheless indicate that it is a realistic option to work with such a concept. With the present state of the art the arguments in favour of such a concept are more convincing than arguments in favour of reducing the vast majority of postpartum psychoses to "atypical" bipolar disorders (30). With the presented evidence concerning specific clinical features such an attitude would even undermine the very basis of **descriptive** classification systems.

Concerning the management of postpartum psychoses our results on the frequency of relapses (40%) indicate that prudence and patience, reflected by a prolonged period of stabilization are necessary precautions in the treatment of these patients. This is also stressed by the frequency of suicidal tendencies and aggressive acts against the child. These aspects clearly demonstrate that patients with postpartum psychoses should be treated in an in-patient setting, preferably on a specialized mother and baby unit. They also indicate that a profound evaluation of suicidal and aggressive tendencies is an absolute requirement in the management and treatment of postpartum mental illness, irrespective of classification.

References

1. Esquirol JED. De l'alienation mentale des nouvelles accouchées et des nourrices. In: Des maladies mentales. Esquirol J.E.D. Ed. J.B. Baillière. Paris 1838.
2. Marcé LV. Traité de la folie des femmes encientes, des nouvelles accouchées et des nourrices. Ed. J.B. Baillière et fils. Paris 1858.
3. Fürstner C. Ueber schwangerschaft und puerperal psychosen. Archiv. f. Psychiatrie. 1875: 5: 505 - 543.
4. Hamilton JA. Postpartum psychiatric problems. St. Louis: Mosby 1962.
5. Hays P and Douglas A. A comparison of the puerperal psychosis and the schizophreniform variant of manic depression. Acta Psychiat. Scand. 1984: 177 - 181.
6. Munoz RA. Postpartum psychosis as a discrete entity. J. Clinical Psychiat. 1985: 46: 5.
7. Klompenhouwer JL, Hulst van AM. Classification of postpartum psychosis; a study of 250 mother and baby admissions in The Netherlands. Acta Psychiat. Scand. 1991: 84: 255 - 261.
8. Meiges FT. Postpartum psychiatric syndromes. Psychosom. Med. 1968 30: 1: 95 - 108
9. Spitzer RL, Endicott J, Robins E. Research diagnostic criteria. Arch. Gen. Psychiatry 1978: 35: 773 - 782
10. Cohen J. A coefficient of agreement for nominal scales. Educ. Psychol. Meas. 1960: 20: 1: 37 - 46.
11. Brockington IF, Kelly A, Hall P, Deakin W. Premenstrual relaps of puerperal psychosis. Journal of Affective Disorders: 1988: 14: 287 - 292.
12. Pitt B. "Atypical" depression following childbirth. Brit. J. Psychiat. 1968: 114: 1325 - 1335.
13. Cox JL, Connor Y, Kendell RE. Prospective study of the psychiatric disorders of childbirth. Br. J. Psychiat. 1982: 140: 111 - 117
14. Kumar R, Robson KM. A prospective study of emotional disorders in childbearing woman. Br. J. Psychiat. 1982: 144: 35 - 47.
15. Gelder M, Gath D, Mayou R. Oxford textbook of psychiatry. Oxford university press 1985.
16. Linn L. In: Comprehensive textbook of psychiatry. Kaplan HI, Freedman AM, Sadock BJ Eds. Third Edition. London: Williams and Wilkins 1983.
17. Aggernaes A. The concepts disturbed state of consciousness and psychosis. Acta Psychiat. Scand. 1975: 51: 119 - 133.
18. Janet P. Les obsession et la psychasthénie I - II. Paris: Alcan, 1903.
19. Andersen J and Laerum H. Psychogenic psychoses. A retrospective study with special reference to clinical course and prognosis. Acta Psychiat. Scand. 1980: 62: 331 - 342.
20. McCabe MS. Reactive psychoses. Acta Psychiat. Scand. 1975 Suppl. 259.
21. Leonhard K. The classification of endogenous psychoses: New York: Irvington Publishers, 1979.
22. Perris C. A study of cycloid psychosis. Acta Psychiat. Scand. 1974: suppl. 253
23. American Psychiatric Association. Diagnostic and statistical manual of mental disorders. 3rd edn., revised Washington DC: APA: 1987.

24. Wing JK, Cooper JE, Sartorius N. The measurement and classification of psychiatric symptoms. Cambridge University Press. England. 1975.
25. Dixon JC. Depersonalisation phenomena in a sample population of college students. *Brit. J. Psychiat.* 1963; 109: 371 - 375.
26. Sedman G. Depersonalisation in a group of normal subjects. *Brit. J. Psychiat.* 1966: 112: 907 - 912.
27. Roth M. The phobic anxiety-depersonalisation syndrome. *Proc. Roy. Soc. Med.:* 1959 : 52: 587 - 595.
28. Sedman G, Reed GF. Depression phenomena in obsessional personalities and in depression. *Brit. J. Psychiat.* 1963: 109: 376 - 379.
29. Davison K. Episodic depersonalisation, observations on 7 patients. *Brit. J. Psychiat.* 1964: 110: 505 - 513.
30. Brockinton IF, Cernik KF, Schofield M, Downing AR, Francis AF, Keelan C. Puerperal psychosis. *Arch. Gen. Psychiatry.* 1981: 38: 829 - 833.
31. Katona CLE. Puerperal mental illness: comparisons with non puerperal controls. *Brit. J. Psychiatry* 1982: 141: 447 - 452.
32. Dean C and Kendell RE. The symptomatology of puerperal illnesses. *Brit. J. Psychiat.* 1981: 139: 128 - 133.
33. Jönsson SAT, Jonsson H, Nyman GE The concept of cycloid psychosis: the discriminatory power of symptoms. *Acta Psychiatr. Scand.* 1991: 84: 22 - 25.
34. Paffenbarger RS. Epidemiological aspects of mental illness associated with childbearing. In: *Motherhood and mental illness.* Brockington IF and Kumar R. Eds. London: Academic Press. 1982.
35. Kendell RE, Chalmers JC, Platz C. Epidemiology of puerperal psychoses. *Brit. J. Psychiat.* 1987: 159: 662 - 73.

CHAPTER III

PATIENTS WITH POSTPARTUM MENTAL ILLNESS:

**OBSTETRIC AND SOCIODEMOGRAPHIC CHARACTERISTICS, PSYCHIATRIC HISTORY,
TREATMENT AND COURSE OF ILLNESS.**

PATIENTS WITH POSTPARTUM MENTAL ILLNESS:

OBSTETRIC AND SOCIODEMOGRAPHIC CHARACTERISTICS, PSYCHIATRIC HISTORY, TREATMENT AND COURSE OF ILLNESS.

Introduction.

This chapter is concerned with a number of characteristics of patients with postpartum mental illness important to the improvement of our understanding of factors related to the aetiology, treatment and course of the disease but without direct bearing on symptoms, nosology or classification.

Considering the fact that epidemiological studies have established the existence of a causal relationship between childbirth and the onset of mental illness (1-5) obstetric factors are of primary interest. We will present the obstetric and gynaecological findings in these patients and subsequently compare these findings with the figures for the obstetric population at large in the Netherlands. Special emphasis will be put on differences between patients with postpartum mental illness and the obstetric population in an effort to uncover a possible aetiological link between obstetric factors and the onset of mental illness.

In view of the question whether or not there exists a unique and specific puerperal syndrome it is of interest to investigate the personal and family history for psychiatric illness in these patients. If, for one, a high percentage of the patients encountered psychiatric illness prior to the childbirth-related breakdown it would indicate against a unique puerperal syndrome and vice versa.

We will also address the issue of treatment of postpartum psychoses in the Rotterdam mother and baby unit and discuss factors related to management, course and outcome of the illness, such as the duration of stay in hospital and the condition of the patient at discharge.

Method.

The case registers of the patients admitted consecutively to the mother and baby unit of the Rotterdam University Hospital between 1967 and 1989 were subject to this study (n = 281). The case registers studied are identical to those described in chapter II and IV. Patients with an onset of symptoms before delivery (n = 31) were excluded to make sure we were studying postpartum mental illness. The remaining patients (n = 250) all had an onset of symptoms within three months following delivery.

The case notes were investigated for relevant items of information without direct bearing on symptoms and nosology. These items are: a number of sociodemographic characteristics, gender of the child, drug treatment, duration of stay in hospital, the condition of the patient at discharge from hospital, personal and family history of psychiatric illness and the obstetric and gynaecological history of the patients. This last item involves parity and obstetric complications such as Caesarian section and pre-eclampsia.

The 250 cases presented in this study were derived from 238 patients. Twelve women were admitted twice because of a puerperal mental disorder. These second admissions were considered a separate case for all items except the personal and family history of psychiatric illness. In respect to this last item the results are presented for all first mother and baby admissions (n = 238). The condition of the patient at discharge from hospital was scored on list consisting of 4 items, i.e. 1. full recovery 2. significant improvement 3. not significantly improved or deterioration 4. no valid information, due to a premature end of treatment (patient left hospital against advice of the staff).

Results.

Sociodemographic characteristics

The mean age (\pm SD) of the women at admission was 26.7 ± 4.5 (range 17 to 44) years. This almost covers the entire fertile age of women with a peak in the mid to late twenties. This corresponds to the figures for the Dutch population between 1967 and 1988 (Vademecum health statistics of the Netherlands 1989). Although there are some epidemiological indications that on average women with postpartum mental illness may be a few (two) years older (2) there is no consistent evidence indicating that the age of the mother is a special risk factor (7). Of the women 92% were either married or stably cohabiting. Women with a R.D.C. classification of schizophrenia were the only exception, half of them were single.

Obstetric and gynaecological history

As was expected there was an excess in first deliveries, 71% of the patients were primiparous. (95% confidence interval 65% to 77%) Between 1967 and 1987 the percentages of first children out of all children born in the Dutch population varied between 39 and 44% (Vademecum health statistics of the Netherlands 1989). This confirms earlier studies indicating that a first delivery is a risk factor for developing postpartum psychiatric disturbances. Kendell also made it plausible that this phenomenon was not due to the fact that women who experienced a psychosis after the birth of their first child may avoid a second pregnancy (7).

There were 22% second- and 7% third-time or more mothers. Lower percentages of primiparae were found in women with an R.D.C. diagnosis of schizophrenia (42%) and major depressive disorder (56%). For the other R.D.C. categories percentages of primiparae varied between 73 and 81 percent.

The majority of the patients had a normal pregnancy and confinement without complications (86%). Delivery took place of term in 94% of the cases.

Obstetric complications occurred in 14% of the patients. Caesarian section (5%), and pre-eclampsia (5%) were the most frequently observed complications. Due to the fact that the cases presented in this study extend over a period of 20 years, the results are difficult to compare with the figures for the population in the Netherlands, presented over a five year period (9). The frequency of Caesarian section in the patient group (5%) is not higher than the frequency in the population (6,5%) in 1986 (9). Obstetric complications were abnormally frequent however in patients classified as schizophrenic (42%, 5 out of 12), and Unspecified Functional Psychosis (23%, 17 out of 74). In all other R.D.C. categories percentages of obstetric complications varied between 0 and 12%. Low percentages were found in major and minor depressive disorders (5%) and schizo-depression (0%). Of that part of the sample that was originally given the classical diagnosis of puerperal psychosis 10% had obstetric complications. The excessively high percentages of obstetric complications can be a chance finding (because of small numbers) in schizophrenia ($n = 12$). However, compared to the rest of the sample a statistically significant excess in obstetric complications was found in the patients classified as unspecified functional psychosis ($n = 74$). ($X^2(1) = 6,01, p = 0,014$) Of the 17 patients with obstetric complications in this category 7 had a caesarian section and 8 pre-eclampsia. Caesarian section was already suggested to be a risk factor for developing puerperal psychosis (7). However our results indicate that when caesarian section or pre-eclampsia is implicated in the development of a postpartum psychosis it frequently takes the form of a unspecified functional psychosis according to R.D.C. (57% of the caesarian sections and 67% of the pre-eclampsia's are found in this category, while unspecified functional psychosis only represents 30% of all admissions).

Gender of the baby:

There was an equal distribution, 50% each, in boys and girls born (250) out of the mothers admitted. Conflicting results have been reported on the relationship between postpartum psychoses and the gender of the child. Both a positive correlation between postpartum psychoses and the birth of a boy (10,11) as well as a positive correlation with the birth of a girl (12) have been reported. Our results do not confirm these findings and indicate that within the cultural context of the Netherlands, the gender of the baby does not appear as a specific risk factor.

Personal and family history of psychiatric illness.

All case registers contained adequate information about the personal history of the patient concerning prior psychiatric illness and treatment (Table I). The family history was not adequately described in all patients and valid information was found in 196 of the 238 patients (82%). Therefore the percentages regarding the family history (Table I) only relate to the cases in which adequate information was available. The presence of a personal or family history of psychiatric illness was scored if patients or their first and second degree relatives had been treated because of mental illness (as in-patient and/or out-patient). In an important number of the cases the data obtained from the case registers were not specific enough to allow a reliable diagnostic classification of the psychiatric disorders figuring in the personal and family history of the patients. Therefore only the data concerning psychiatric illness in general are presented here.

TABLE I.

History of psychiatric illness	n=238	n=196
	% Personal	% Family
R.D.C. classification:		
Schizophrenia	67	63
schizo-affective depression	45	64
schizo-affective mania	27	30
Unspecified functional psychosis	19	34
Mania, hypo-mania and bipolar	29	44
Major depressive disorder	26	46
Minor depressive disorder	10	13
Other psychiatric disorder	10	53
All cases	25	37
Classical diagnosis Puerperal psychosis	20	33

It is illustrated in table I that 25% of the whole sample of patients suffered at least one episode of mental illness prior to the puerperal breakdown. This also means that for 75% of the patients childbirth was the precipitating factor in the first appearance of a severe psychiatric illness.

Patients with the R.D.C. classification schizophrenia had the highest percentage of positive personal (67%) and family (63%) history of psychiatric disorders. Patients in the schizoaffective depression came close to this score (Table I). Very low percentages of personal and family psychiatric illness were found in the R.D.C. category minor depressive disorder (10 and 13% respectively). This finding indicates that women who develop a non-psychotic depression in the puerperium are probably less vulnerable (biologically and genetically) to psychiatric disorders. It also suggests that factors related to the psychological and social context of childbirth and its sequelae, are probably of greater aetiological importance in this subgroup.

Patients classified as "other psychiatric disorder" (a diverse group of mainly mixed personality disorders) had seldom encountered personal psychiatric problems before, but seem to have disturbed backgrounds (Table I). A positive personal history of psychiatric illness was found in 27% of the patients with schizoaffective mania, in 29% of the cases classified as mania and in 26% of the patients with major depressive disorder. The rates for a positive family history of psychiatric illness in these classifications are even higher. However a positive family history was less frequently found in schizoaffective mania (30%) than in major depressive disorder (46%) and mania (44%). Lower rates were also found for unspecified functional psychosis (34%) (Table I).

In that part of the sample that was originally given the classical diagnosis puerperal psychosis, a relatively low frequency of psychiatric illness in the personal history of patients was found compared to the rest of the sample. Although not statistically significant there was a trend for personal psychiatric history. ($X^2(1) = 3,09$ $p = 0,079$)

Although our results could have been biased due to the fact that we are studying hospital admissions they are consistent with epidemiological studies (5, 13, 14), indicating that a positive personal or family history of psychiatric illness (especially affective disorders) are risk factors in developing psychiatric problems postpartum. However it is also evident that, except for the classifications schizophrenia and schizodepression, childbirth meant the first confrontation with mental illness in a large majority of the patients.

Biological treatment strategies.

The treatment of puerperal psychosis in Rotterdam was heavily influenced by the work of Silberman et al (15) who compared several types of neuroleptics with and without lithium in patients with postpartum psychosis. He concluded that a combination of perfenazine and lithium was superior to other combinations or neuroleptics alone. This became the "treatment of choice"

to be administered to patients with the classical diagnosis of puerperal psychosis. Approximately two thirds of the women diagnosed as such were treated accordingly (Table II). The diagnostic breakdown of the sample according to RDC and drug treatment in these patients is also illustrated in Table II. Neuroleptics, exclusively or in combination with other drugs, were the most frequently prescribed drugs (74% of the whole patient group).

TABLE II.

DRUG TREATMENT IN RELATION TO R.D.C. CLASSIFICATION AND "CLASSICAL DIAGNOSIS" OF PUERPERAL PSYCHOSIS, IN PERCENTAGES.

	Neuroleptics	Lithium and Neuroleptics	Lithium	Lithium and anti-depressants	Anti-depressants	Anti-depressants and Neuroleptics	Exclusively Benzodiazepines	No medication
Schizophrenia n=12	75	25	--	--	--	--	--	--
Schizo-affective disorder n=63	32	63	--	--	2	3	--	--
Mania, hypomania and bipolar n=31	19	68	7	3	--	--	--	3
Major depressive disorder n=19	21	21	--	16	10	16	10	6
Minor depressive disorder n=21	9	--	--	--	38	--	24	29
Unspecific Functional Psychosis n=74	51	38	1	--	--	--	6	4
Other psychiatric disorder n=21	19	--	--	--	4	8	28	41
Classical diagnosis Puerperal psychosis n=127	32	64	--	--	1	--	2	1

The "treatment of choice" is reflected in the R.D.C. categories schizoaffective disorder, mania and to a lesser extent, unspecified functional psychosis. Lithium, exclusively or in combination with other drugs, was prescribed in 41% of the cases. Antidepressants were only given to 9% of the patients. In view of the R.D.C. classification drug treatment appears to be rather conventional although one would have expected to see more patients treated with antidepressants and less

patients treated with the combination of neuroleptics and lithium. None of the 250 patients admitted to the Rotterdam mother and baby unit was treated with electroconvulsive therapy (ECT).

The treatment of puerperal psychoses with a combination of lithium and neuroleptics is not a generally accepted and uncontested one. In contrast to the situation in the Netherlands, ECT is widely accepted and considered an effective treatment of puerperal psychoses in a number of European countries including Great Britain. Protheroe (16) even attributed the dramatic improvement in the outcome of puerperal psychoses after 1950 to the introduction of ECT in the treatment of these patients. In a review of the literature on this subject Oates (17) concluded that psychiatrists appear to be clinically convinced that ECT is particularly effective in the treatment of puerperal psychoses, in spite of the (generally acknowledged) lack of hard research evidence supporting the superiority of ECT over drug treatment. Factors associated with the use of ECT in puerperal psychoses described by Oates are: stupor, delusions, not drinking and eating and major suicidal behavior. Judged from the situation in the Netherlands, where major taboos surround the use of ECT, it is remarkable that in some of the patients described (17) ECT prevailed over lithium treatment to enable the mother to continue breast-feeding. The most important advantage of ECT over drug treatment appearing from the review by Oates is that it works quickly. In general ECT can be considered as effective as drug treatment. In a review of the different treatment options Brockington et al (18) recommend the following (biological) treatment strategies in puerperal psychoses:

"A patient with the clinical picture of mania, schizomania or schizophrenia should be treated with neuroleptics, lithium or both, and if there is no response within a month, with ECT. If the clinical picture is one of depression, particularly delusional depression, we favour the use of ECT at an early stage".

If the disadvantages of ECT such as the necessity of general anaesthesia with complete relaxation for each ECT application (twice weekly during approx. 6 weeks), the possible appearance of short lasting memory deficits after each application and the highly sensitized public opinion on this issue are taken into account, there is little ground for abandoning the attitude of reservation adopted in the Netherlands towards the use of ECT in the puerperal period. However, totally excluding ECT in the treatment of these patients can be considered irrational as it is obvious that positive indications for ECT may exist in patients with postpartum psychoses. Intolerance to drug treatment, unmanageable psychotic and suicidal behavior and failure to respond after 4 to 6 weeks of adequate drug treatment may be considered positive indications in patients with postpartum affective or schizoaffective disorder. If the only gain from ECT compared to drug treatment is to enable the mother to continue breast feeding it is questionable if this counterbalances the costs if

one takes into account the above mentioned disadvantages and the psycho-social impact of the technique. The strongest argument in favor of ECT is that it may produce fast results. In general however, we favor the use of drug treatment in these patients, with the above mentioned circumstances as possible exceptions.

Duration of hospitalization.

The average stay in hospital was three months (14 weeks). Table III shows the duration of stay (\pm SD) in weeks for the different R.D.C. categories. The variation ranges from 1 to 47 weeks.

TABLE III.

RDC classification		Duration of hospitalisation \pm SD in weeks	% Recovered or significant improved at discharge
Schizophrenia	n=12	10 \pm 6,2	54
Schizo-affective depression	n=12	18,3 \pm 7,6	79
Schizo-affective mania	n=51	15,6 \pm 8,0	90
Unspecified functional psychosis	n=74	13,5 \pm 8,7	91
Mania, hypo-mania and bipolar	n=31	14,8 \pm 7,4	93
Major depressive disorder	n=19	12,2 \pm 7,2	88
Minor depressive disorder	n=21	8,5 \pm 6,7	77
Other psychiatric disorder	n=21	7,7 \pm 10,4	55
All cases	N=250	13 + 8,5	83
Classical diagnosis Puerperal psychosis	n=127	16,2 \pm 8,5	89

Women with minor depressive disorder spent the least time in hospital (mean 8,5 weeks) while women with schizo-affective disorder took the longest time to recover (mean 16 weeks). Women classified as schizophrenic had a shorter stay in hospital (mean 10 weeks) than schizo-affective disorder (mean 16 weeks). The relative difference between minor depressive disorder and schizo-affective disorder is in accordance with the results of Meltzer and Kumar (8), but not the absolute figures since the modal duration of stay in their sample was 3 - 4 weeks. There are a number of explanations for this difference. In their sample 43% of the patients were suffering from a non psychotic disorder compared to only 20% in our group, which means that our group was more seriously ill. Other factors contributing to a longer duration of hospitalisation in the Netherlands are differences in professional opinions and attitudes towards postpartum mental illness, reflected

in the management of these disorders. On good grounds (chapter II) puerperal psychosis developed a reputation (in the Netherlands) for its relapsing course. A relapse may occur even after a seemingly complete recovery. Therefore patients stayed in hospital for several weeks after they were considered completely recovered to make sure that a relapse, if any, took place in hospital and not when patients were at home alone with their baby. The habit of making patients leave hospital gradually (first weekends, later on two days a week and the weekends) also adds a few weeks to the total duration of stay in hospital.

Another important factor may be treatment differences such as the use of ECT. None of our patients was treated with ECT while 22% of the sample described by Meltzer and Kumar (8) was administered ECT.

Condition at discharge from hospital.

At discharge from hospital 65% of the patients were considered fully recovered and 18% were considered significantly improved. This means that 83% of the patients were in good condition when they left the hospital. Of the remaining patients 8% were not significantly improved and 9% left hospital against advice of the staff. These figures are in accordance with the findings of Protheroe (16) who found 74% of his patients to be recovered and 13% to be improved. Considerable differences are found between the various R.D.C. categories (Table III). Within expectation lower percentages of recovered or markedly improved patients were found in the R.D.C. categories of schizophrenia and other psychiatric disorder. The latter category contains a diverse group of patients with mainly mixed personality disorders. The other R.D.C. categories showed complete recovery in 65 - 75% of cases. If we include the significantly improved patients, between 77 and 93% of the patients (Table III) were in good condition when they left hospital. The figures for the patients that were originally given a classical diagnosis of puerperal psychosis are in the same range.

It can be concluded that, with the exception of schizophrenia and patients with mixed personality disorders, postpartum mental illness has a favorable short term outcome, a finding that is in accordance with the results of numerous studies ever since the first clinical descriptions of the nineteenth century.

Discussion.

Due to the fact that this chapter is dealing with rather diverse characteristics of patients with postpartum mental illness the most detailed part of the discussion related to each individual subject can be found in the results section of this chapter. This discussion will mainly focus on the broad

outlines as they appear from the findings of this study.

When interpreting the results of this study we must bear in mind that we are dealing with hospital admissions. These may not be representative of the population at large due to a selection bias. Therefore our results are systematically compared to the figures of epidemiological studies.

The results on the sociodemographic characteristics confirmed earlier studies (7) that the age of the mother is not a specific risk factor. Epidemiological studies on the marital status indicate that not having a husband at the time of delivery (divorced, widowed) is a risk factor in developing postpartum mental illness (7). Our results are not consistent with these findings as 92% of our patient group was either married or stably cohabiting. It is hard to conceive that a stable marriage could create a positive selection bias for hospital admissions. A reverse relationship between marital status and hospital admissions is more likely. Therefore we interpret our results as indicating against a relationship between being single or divorced and postpartum mental illness. It can not be excluded however that being divorced or widowed may be a risk factor in a subgroup of patients such as (non psychotic) minor depression according to RDC.

The obstetric history of the patients revealed that there was a significant excess in first deliveries. This is consistent with the well-established epidemiological fact that primiparity is an important risk factor (1, 5, 7). Our results also showed that obstetric complications occurred in 14% of the cases. In contrast to an earlier epidemiological study (7), Caesarian section could not be pointed out as a specific risk factor. Our results did indicate however that the RDC classification Unspecified Functional Psychosis was significantly more associated with obstetric complications than the rest of the sample. Although (gross) organic brain syndromes were ruled out it is highly probable that obstetric complications are part of the aetiology of the disorder in some patients classified as unspecified functional psychosis (a risk factor consisting of a psychological and/or biological stressor or trigger).

The results on the personal and family history of psychiatric illness revealed that 25% of the patients suffered at least one episode of mental illness prior to the puerperal breakdown. It was also shown that 37% of the patients have first degree relatives with psychiatric illness. The differences in rates of personal and family history of psychiatric illness between the distinct RDC classifications are discussed in the results section of this article. Although no figures for the population at large were available to compare our results we have interpreted these findings as a confirmation of earlier epidemiological studies indicating that a personal or family history of psychiatric illness is an important risk factor in the development of puerperal mental illness (19, 20). However, it is also evident that childbirth triggered the first episode of severe mental illness in a large majority (75%) of the patients. The results on the drug treatment of patients on the Rotterdam mother and baby unit revealed that neuroleptics and the combination of lithium and

neuroleptics were the most frequently prescribed drugs. None of the patients in Rotterdam were treated with ECT. An extensive discussion was devoted to the place of ECT in the treatment of patients with postpartum psychoses. Eventually, we concluded that we still favor the use of drug treatment in these patients and limited the indications for ECT in puerperal psychoses to specific situations such as intolerance to drug treatment, unmanageable psychotic and suicidal behavior and failure to respond to adequate drug treatment, in patients with postpartum affective or schizo-affective disorders according to R.D.C.

On the course of illness it was illustrated that the average stay in hospital was three months. Important differences were found between RDC classifications. The mean duration of stay in Rotterdam was long compared to another study on this subject (8). This could be attributed to differences in the patient population (more seriously ill in Rotterdam), professional attitudes towards the management of postpartum psychoses and treatment variables.

At discharge from hospital 83% of the patients were in good condition and 65% of the patients was considered completely recovered.

With the exception of postpartum schizophrenia (according to RDC) and patients with mixed personality disorders puerperal mental disorders appear to have a favourable short term outcome. This is in keeping with the reputation puerperal psychosis has build up ever since the first clinical descriptions of the nineteenth century.

References

1. Paffenbarger RS. Epidemiological aspects of paripartum mental illness. *British Journal of Preventive and Social Medicine*; 1964: 18: 189-195.
2. Paffenbarger RS. Epidemiological aspects of mental illness associated with childbearing. In: *Motherhood and mental illness*. Brockington I.F. and Kumar R. Eds. London: Academic Press. 1982.
3. Kendell RE, Wainwright S, Hailey A, Shannon B. The influence of childbirth on psychiatric morbidity. *Psychological Medicine*; 1976: 6: 297 - 302.
4. Kendell RE. Emotional and physical factors in the genesis of puerperal psychosis. *J. of Psychosom. Research*; 1985: 29: 3 - 11.
5. Kendell RE, Chalmers JC, Platz C. Epidemiology of puerperal psychoses. *Brit. J. Psychiat*; 1987: 159: 662 - 673.
6. Thomas EL and Gordon JE. Psychosis after childbirth: ecological aspect of a single impact stress. *Am. J. Med. Sci.* 1959: 238: 363 - 388.
7. Kendell RE, Rennie D, Clarke JA, Dean C. The social and obstetric correlates of psychiatric admission in the puerperium. *Psychological Medicine*; 1981: 11: 341 - 350.
8. Meltzer ES and Kumar R. Puerperal mental illness, clinical features and classification; a study of 142 mother and baby admissions. *Brit. J. Psychiat.*; 1985: 147: 647 - 654.
9. Vijf jaar landelijke verloskundige registratie 1982 - 1986. SIG informatiecentrum voor de gezondheidszorg 1987.
10. Taylor MA and Levine R. Puerperal schizophrenia: a physiological interaction between mother and fetus. *Biol. Psychiatry*; 1965: 1: 97 - 101.
11. Jonquière-Wichman M. Les psychoses du post partum. *Archives Suisse de Neurologie, Neurochirurgie et de Psychiatrie*; 1981: 128: 1: 105 - 149.
12. Agrawal P, Bathia MS, Malok SC. Postpartum psychosis: a study of indoor cases in a general hospital psychiatric clinic. *Acta Psychiatr. Scand.* 1990: 571 - 575.
13. Bratfos O and Haug JO. Puerperal mental disorder in manic depressive females. *Acta Psychiat. Scand.*; 1966: 42: 285 - 294.
14. Reich T and Winokur G. Postpartum psychoses in patients with manic depressive disease. *J. of Nervous and Mental Disease*; 1970: 151: 60-68.
15. Silbermann RM, Beenen F, De Jong H. Clinical treatment of postpartum delirium with perfenazine and lithium carbonate. *Psychiatria Clinica*; 1975: 8: 314 - 326.
16. Protheroe G. Puerperal psychoses: a long term study 1927 - 1961. *Brit. J. Psychiat.* 1969: 115: 9 - 30.
17. Oates M. The role of electroconvulsive therapy in the treatment of postnatal mental illness. In: *Puerperal Mental illness*, Cox J.L., Kumar R., Margison F.R. and Downey L.J. Eds. Duphar medical relations 1986. ISBN 0-88137-022-3
18. Brockington IF, Cernik KF, Schofield EM, Downing AR, Francis AF, Keelan C. Puerperal psychosis. *Archives of General psychiatry*; 1981: 38: 829 - 833.
19. Whalley LJ, Roberts DD, Wentzal J, Wright AF. Genetic factors in puerperal affective psychoses. *Acta Psychiat. Scand.* 1982: 65: 180 - 193.

20. Bratfos O, Haug JO. Puerperal mental disorder in manic depressive females. *Acta Psychiat. Scand.* 1966; 42: 285 - 294.

CHAPTER IV

THE CLASSIFICATION OF POSTPARTUM PSYCHOSES; A STUDY OF 250 MOTHER AND BABY ADMISSIONS IN THE NETHERLANDS.

J.L. Klompenhouwer and A.M. van Hulst.

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**THE CLASSIFICATION OF POSTPARTUM PSYCHOSES;
A STUDY OF 250 MOTHER AND BABY ADMISSIONS IN THE NETHERLANDS.**

Introduction

Although postpartum psychoses have been studied since the time of Hippocrates, there is still no consensus about their classification and nosology.

In The Netherlands puerperal psychosis has historically been regarded as a discrete disease entity that demanded a specific treatment regimen. A puerperal syndrome "par excellence" was recognized, the so called amentia (1,2). It was thought to be of mainly psychogenic (or reactive) origin and to occur in women with an immature personality.

The word amentia refers to confusion and/or perplexity. It originates from the German literature, and is historically known as one of the exogenous reaction types described by Bonhoeffer (3). This amentia was seen as the nuclear symptom of puerperal psychosis. In a later stage this concept was also shaped by the work of Hamilton (4).

According to this classical concept of puerperal psychosis, typical patients were healthy women developing an acute confusional psychosis within 2 weeks of delivery, characterized by:

1. rapid changes in the level of consciousness, leading to confusion, perplexity or disorientation (amentia), with occasionally lucid intervals;
2. psychomotor disturbances varying from agitation to severe retardation and stupor, with the corresponding verbal communication varying from rapid clang associations to mutism;
3. affective disturbances with pananxiety, sometimes alternating with ecstatic happiness, or more stable affective disturbances such as depression and mania;
4. hallucinations and pseudo-hallucinations, both auditory and optical, with anomalous perceptions leading to misidentifications and illusions;
5. delusions and delusional thoughts with a typical content, mostly related to mothering, labour, the child, death and destruction; and
6. changeability of the whole picture over time: the so-called kaleidoscopic picture.

Apart from this typical puerperal syndrome, other syndromes were recognized postpartum, such as schizophrenia, mania and depression.

In 1967 a mother-and-baby unit was created in the University Hospital Rotterdam - Dijkzigt (by the late Prof. Dr. G.A. Ladee), where patients were diagnosed in accordance with the above-

mentioned concept of puerperal mental illness and where special attention could be paid to the developing bond between the recovering mother and her child. The 250 cases discussed in this paper were all patients on this mother-and-baby unit between 1967 and 1989.

To our knowledge this is the largest group of patients originating from one hospital published so far. In this article we present the diagnostic breakdown of the sample ($n = 250$) according to RDC and compare it with that part of the sample that was originally given the classical diagnosis of puerperal psychosis (amentia) ($n = 127$). By looking at the same cases from different classificatory systems we hope to gain insight in the way these systems are related and to see if arguments can be found in favour of one of these approaches.

Material and method.

The case registers of all patients admitted ($n = 281$) to the mother-and baby unit of the Rotterdam University Hospital Dijkzigt between 1967 and 1989 were subject to this study. Patients with an onset of symptoms before delivery ($n = 31$) were excluded to make sure we were studying postpartum mental illness. The remaining patients all had an onset of symptoms within the 3 months following delivery. The 250 admissions were derived from 238 patients. Twelve women were admitted twice because of a puerperal mental disorder. These second admissions were considered as separate cases as regards clinical features and classification. The casenotes contained detailed descriptions of the clinical features and behavior of the patients. They were made by qualified nurses, who made a report at every shift 3 times a day and doctors (in a university training hospital) thus allowing an evaluation of symptoms and a reliable retrospective classification according to the Research Diagnostic Criteria (5).

All patients underwent thorough medical examination, including standard laboratory tests. Subjects had been screened to exclude organic aetiology. If such aetiology was found, patients were classified as other mental disorder.

Symptoms and classification were evaluated by both authors after interrater sessions. The reliability and reproducibility of the RDC classification was checked by calculating a coefficient of interrater agreement for nominal scales (6); yielding a K (Kappa) of 0.79.

To allow a direct comparison, we decided to present our results on the diagnostic breakdown of the sample, onset of illness and time of admission in the same structure as an earlier leading article on this issue (7).

Results

RDC classification, onset of illness and time of admission.

If there is an aetiological association between parturition and the onset of mental illness, one would expect to find a close and clearcut temporal relationship. As was already discussed by Brockington et al (8), defining the illness by the moment of hospitalization has the advantage of defining a clearcut temporal relationship between delivery and admittance to hospital. The disadvantage of this method, however, is that the time between delivery and hospitalization is not only influenced by the severity of the illness but also by factors such as the organization of mental health care in a community, professional attitudes towards the concept of puerperal psychosis and a great number of social factors. Therefore, it is preferable to define the illness by the onset of symptoms in relation to parturition, although this method also has some limitations in accuracy. Both methods are presented here to allow comparison with earlier studies.

The relationship between the RDC classification and both the week of onset of symptoms and the week of admittance to hospital are presented in Fig. 1 and 2.

The RDC classification of the whole group (n = 250) and a subgroup (n = 181) whose illness began within 2 weeks following delivery is presented in Table I.

Table 1. Classification according to Research Diagnostic Criteria of 250 admissions because of puerperal mental illness, with an onset of symptoms within 3 months postpartum, and in subsample (n= 181) of these 250 cases with an onset of symptoms within 2 weeks following delivery

	n=250		n= 181	
	n	% of sample	n	% of sample
Schizophrenia	12	4.8%	8	4.4%
Schizoaffective depression	12	] 25.2%	7	] 26.5%
Schizoaffective mania	51		41	
Manic disorder	27	] 12.4%	25	] 16.0%
Hypomanic disorder	2		2	
Bipolar	2		2	
Major depressive disorder	19	] 16.0%	11	] 12.7%
Minor depressive disorder	21		12	
Unspecified functional psychosis	74	30.0%	57	31.5%
Generalized anxiety disorder	4	] 11.6%	2	] 8.9%
Labile personality	2		1	
Obsessive-compulsive disorder	1		-	
Other mental disorder	21		12	
Unclassifiable	2		1	

In accordance with previous studies on this subject (7, 9, 10) we found that only a small part of the sample (5%) met RDC for schizophrenia. Schizoaffective disorders, however, were particularly common (25%, 63 of 250), most of them (81%, 51 of 63) being schizo-manic episodes (Table I). If we include the whole spectrum from minor depressive disorder to schizo-affective disorder the majority of the sample (54%, 134 out of 250) consists of affective disorders. Although good arguments can be presented in favor of including schizomania (according to RDC) in the category of affective disorders, they are lacking for schizodepression (11). In general, schizoaffective disorder according to RDC should be considered as a heterogeneous disorder (12 - 14).

If we do not include the schizoaffective disorders, affective disorder only represent 28% (71 of 250) of the sample. Even if we include the schizoaffective disorders our 54% is considerably lower than in the British studies (7, 9, 10), that report percentages of affective spectrum disease in over 75% of their patient groups. This difference is due to the high percentage of schizoaffective disorders in our study and to the fact that 30% of the patients met RDC for unspecified functional psychosis. In this respect our findings are in accordance with studies from Sweden (15) and India (16) that reported that 20% and 47% respectively of their subjects met RDC for this classification.

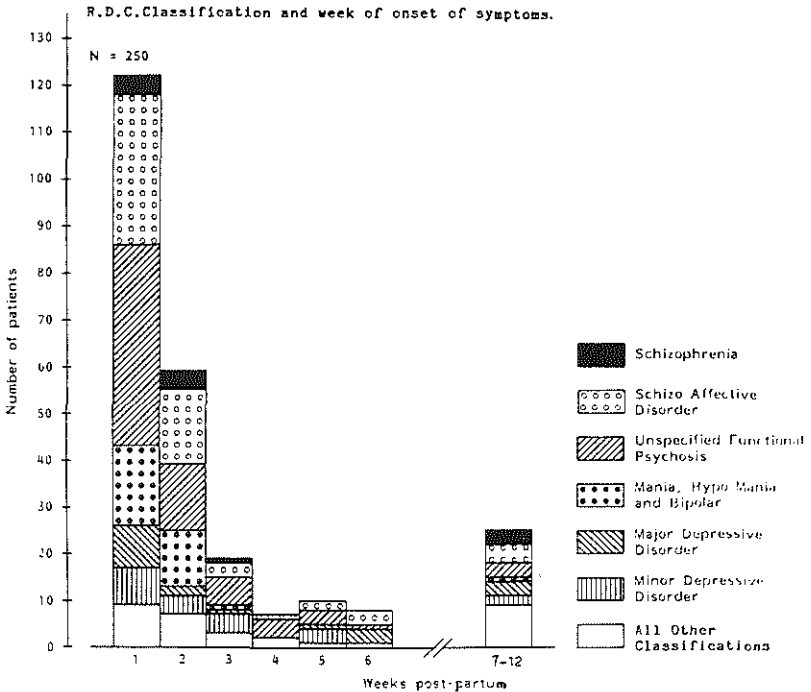


Fig. 1. RDC classification and week of onset of symptoms.

There is a major peak in onset of symptoms in the first and, to a lesser extent, in the second week postpartum (Fig 1). Although symptoms were rarely seen before the third day postpartum the major peak in the first week is caused by the great number of patients with an onset of symptoms from the third to the seventh day. If the whole group is considered, 72% (181 of 250) of all cases (Table 1 and Fig. 1) have an onset of symptoms within 2 (and 83% within 4) weeks of delivery. Fig. 1 shows that only 10% of the cases started after week six postpartum.

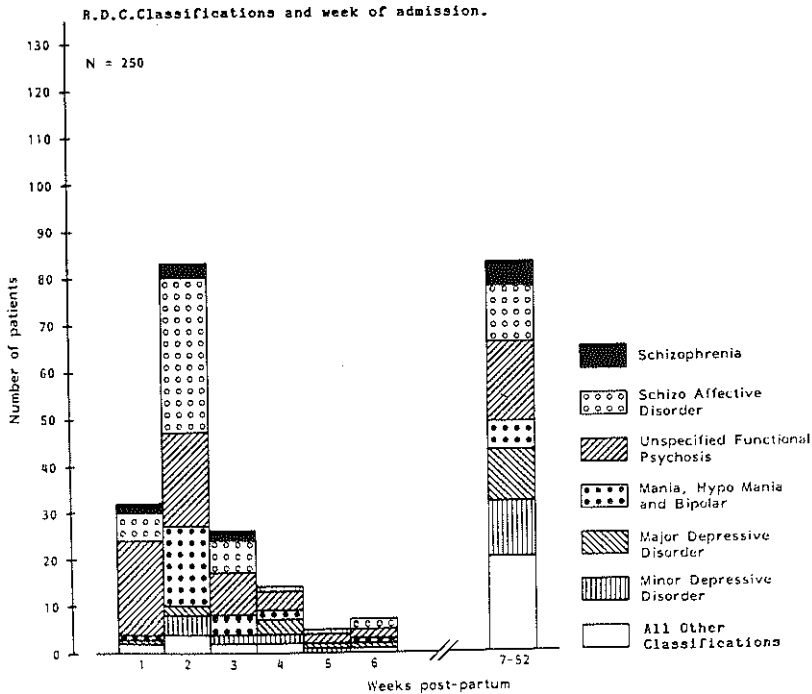


Fig. 2. RDC classifications and week of admission

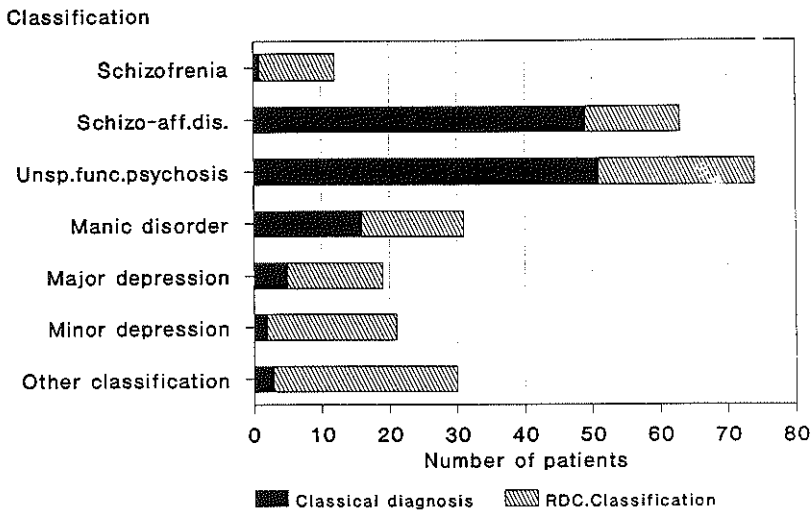
The peak in admissions is found in the second week (Fig. 2) but there is a considerable delay in admissions, reflected by the fact that 33% of all patients are only admitted after week six. Brockington et al (9) and Dean & Kendell (10) reported that the greatest incidence of affective disorders was seen if only the cases with an early onset of symptoms (within 2 weeks) were considered. Meltzer & Kumar (7) reported a trend in this direction. We do not find a relationship between an early onset of symptoms and a greater incidence of affective disorders, or any other category (table I). This also applies to the category of unspecified functional psychosis. What we

did find however, is that disorders which include a manic syndrome (schizoaffective mania, manic disorder, hypomania and bipolar) have an earlier onset of symptoms than disorders which include a depressive syndrome (schizoaffective depression, major depressive disorder, minor depressive disorder). ($X^2(1) = 14.26; P < 0,001$). Of the disorders including a manic syndrome, 88% (72 of 82) have an onset of symptoms within 2 weeks vs 58% (30 of 52) of the disorders including a depressive syndrome (Table I). Although this phenomenon was also reported by others (7,9, 10) it could be due to the fact that manic symptomatology is more rapidly recognized as pathological than depressive symptomatology.

RDC classification vs classical diagnosis puerperal psychosis.

Fig.3

Overlap of RDC-classification and classical diagnosis puerperal psychosis



Of all patients originally given the classical diagnosis puerperal of psychosis (n = 127), 83% had an onset of symptoms within 2 and 90% within 3 weeks of delivery. Compared with the diagnostic breakdown of the sample according to RDC only manics had a closer relationship between delivery and onset of symptoms, respectively 94% within 2 and 97% within 3 weeks of delivery. All other categories according to RDC had a more distant relationship between delivery and onset of symptoms. The relationship between RDC classifications (n = 250) and that part of the sample that was originally given the classical diagnosis puerperal psychosis (n = 127) is presented in Fig. 3. There was a considerable overlap between a classical diagnosis of puerperal psychosis and the RDC classifications of schizoaffective disorder (78%) and unspecified functional

psychosis (69%). With a random distribution one would have expected to find a 50% overlap ($n = 250$, $n = 127$). Of all patients that were originally given the classical diagnosis of puerperal psychosis 79% (100 of 127) were classified according to RDC as either schizoaffective disorder or unspecified functional psychosis.

If both categories (schizoaffective disorder and unspecified functional psychosis) are added (63 + 74), they represent 55% (137 of 250) of the whole sample and 68% (137 of 199) of all psychotic disorders. This means that a large majority of the patients with a psychotic disorder cannot (or with great difficulty) be classified within the Kraepelinian dichotomy of schizophrenia vs affective disorders.

As this Kraepelinian dichotomy is the basis of all modern descriptive classification systems, our results question the validity of any such system in classifying postpartum mental disorder. It also stresses that puerperal psychosis, in general, has special features which will make it atypical from the point of view of those thinking within the framework of the Kraepelinian dichotomy and unique from the point of view of those who think of it as a separate nosological entity.

Discussion.

In modern classification systems that adopt descriptive classifications and make no aetiological classifications, puerperal psychosis has been eliminated with the argument that it has no specific clinical features.

Brockington et al (8) already pointed out that the studies on which this decision was based had major methodological shortcomings. In spite of the efforts of Hamilton (4), who stressed the unique features, the opinion that there was no such thing as a puerperal psychosis spread widely, acquired the status of dogma and resulted in the disappearance of puerperal psychosis out of all modern classification systems.

Recent epidemiological studies (15, 17, 21) however, revived the concept when the aetiological association between childbirth and the onset of severe mental illness was shown.

Paffenbarger (19) demonstrated that 18 times as many women were admitted to mental hospitals in the first month postpartum as in each month of pregnancy, and Kendell (21) calculated that for primiparae, the risk of being admitted to a mental hospital is 35 times higher in the first month postpartum. The close temporal relationship between the onset of symptoms and delivery that we found in our patient group (72% within 2 and 83% within 4 weeks) is consistent with this epidemiological evidence. Although it can be concluded that childbirth is an important precipitating factor in the development of psychosis, these findings do not prove its specificity.

Most studies on this subject acknowledge the fact that psychoses in the puerperium often manifest with atypical features such as confusion and perplexity but different conclusions are drawn.

British studies using RDC (5) indicate that approximately 75% of the patients hospitalized because of postpartum mental disorders meet the criteria for affective and schizo-affective disorders (7, 8, 22). However they also acknowledge the fact that, compared with nonpostpartum affective disorders, there is a higher rate of confusion, psychotic symptoms, lability in mood and of Schneiderian first-rank symptoms in patients with postpartum affective disorder (9, 23, 24).

Our results also indicate that affective disorders are relatively common in postpartum hospitalized patients (54% of the sample), although approximately half of them were classified as schizoaffective. This reflects the high rate of atypical symptoms (confusional, psychotic, rapid changes in the presented picture and Schneiderian first-rank symptoms) described in these patients. As schizoaffective disorder according to RDC should be considered as a heterogeneous disorder (12 - 14), the ultimate percentage of affective disorders in the total sample is lower.

In accordance with studies from Sweden (15) and India (19), we find an important part of the sample (30%) to be classified as unspecified functional psychosis. Bågedahl - Strindlund (14) even indicated that the peak in incidence of mental disorders postpartum was caused by a rising number of women classified as unspecified functional psychosis.

If we summarize our results and the above-mentioned studies, it can be concluded that, according to RDC postpartum psychosis has 3 main phenomenological manifestations: affective, schizoaffective and unspecified functional psychosis. These three categories each comprise about 30% of the psychotic disorders postpartum. Schizophrenia (according to RDC) is relatively absent (5% of the whole sample) in the postpartum period.

If we had used DSM. III-R (27) to classify the RDC categories of schizo-affective disorder and unspecified functional psychosis, most of the cases would have been classified within the section "Psychotic disorders not elsewhere classified". Within this section they would have been classified as schizo-affective disorder, brief reactive psychosis, atypical psychosis and schizofreniform disorder with good prognostic features (acute onset, disorientation, confusion or perplexity and good premorbid functioning).

The classical concept of puerperal psychosis used in The Netherlands, which is very similar to the concept of cycloid psychosis (25, 26) largely overlaps the RDC categories schizoaffective disorder and unspecified functional psychosis.

In this respect the concept is functional, as it appears to fill a nosological gap between affective disorders and schizophrenia that is particularly apparent in psychotic disorders associated with childbirth. Depending on one's concept of mental illness, there are different possibilities to explain

the presented facts.

If we look at these results from the concept of a continuum of psychosis or *Einheits-psychose* (28), our findings would indicate that psychotic episodes in the puerperium are characterized by having many different dimensions of this unitary psychosis, except for the schizophrenic dimension. A second possible interpretation of our findings would be to explain them in terms of the existence of a third functional psychosis; for example, puerperal psychosis or cycloid psychosis.

It is common practice, however, to interpret these results within the framework of the descriptive classification systems based on the Kraepelinian dichotomy.

If we do so, it leads us to the conclusion that childbirth is a strong precipitating factor in the development of affective disorders (if we include schizoaffective disorders). The nature of this precipitating factor could be adding special features to the clinical picture. This would explain the frequency of atypical symptoms. Another possible explanation would be the postulation of a subtype (biochemically or genetic) of affective disorders with a special tendency to childbirth-related breakdown (22, 24). In both cases, the train of thought leads to the conclusion that we are dealing with a atypical manifestation of a bipolar disorder. The well established fact that women with a history of bipolar affective disorder are at high risk for a puerperal breakdown (29 - 31) lends further support to this hypothesis. It is clear that the latter explanation of the facts has the most supporters in the literature (8, 21, 22). And, indeed, it is a justified conclusion that a part of the psychotic disorders postpartum are manifestations of a lifetime vulnerability to affective disorders (or a subtype), with childbirth as the precipitating factor for this particular episode. However, this does not alter the fact that a considerable part of the psychotic disorders postpartum (in this study 68%) do not fulfill the criteria for strictly defined affective disorder; that is, are classified as either schizoaffective or unspecified functional psychosis. What stands out clearly is that psychoses subsequent to childbirth often have special (or atypical) features. This makes postpartum psychosis particularly difficult to classify without bending the phenomenological reality (with reference to the pathoplastic variation in phenomenology) into the favored classificatory system. Such an attitude obscures reality and hinders adequate research on the subject. It is therefore justified to question the compulsion to classify postpartum psychosis within the Kraepelinian dichotomy. The most rational way would be to acknowledge the fact that psychoses in the puerperium are often difficult to classify and to draw conclusions from this fact as to its nosological status. The combination of distinct features and the epidemiological evidence of a causal relationship between childbirth and the onset of mental illness justifies a separate status for puerperal psychoses within modern classificatory systems. The most adequate classification would be to name both the etiological association and the RDC (or DSM III) classification; for example,

puerperal psychosis schizomanic type or puerperal psychosis unspecified type. Future research will eventually decide its definite place within nosology.

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References

1. Carp EADE. *Psychosen op exogenen grondslag en geestelijke defecttoestand*. Amsterdam, Scheltema en Holkema 1937.
2. Silberman RM, Beenen F, De Jong H. Clinical treatment of postpartum delirium with perfenazine and lithium carbonate. *Psychiatra Clinica* 1975; 8: 314-26.
3. Bonhoeffer K. Die exogenen Reactionstypen. *Archiv. f. Psychiatrie und Nervenkrankheiten* 1917; 58: 58-70.
4. Hamilton JA. *Postpartum psychiatric problems*. St. Louis: Mosby 1962.
5. Spitzer RL, Endicott J, Robins E. *Research Diagnostic Criteria for a selected group of functional disorders*. Third edn. New York State Psychiatric Institute 1978.
6. Cohen J. A coefficient of agreement for nominal scales *Educational and psychological measurement* 1960; 20: 1: 37-46.
7. Meltzer ES and Kumar R. Puerperal mental illness, clinical features and classification; a study of 142 mother and baby admissions. *Brit. J. Psychiat.* 1985; 147: 647-54.
8. Brockington IF, Winokur G, Dean C. Puerperal psychoses. In: *Motherhood and mental illness*. Brockington IF and Kumar R. Eds. London: Academic Press. 1982.
9. Brockington IF, Cernik KF, Schofield EM, Downing AR, Francis AF, Keelan C. Puerperal psychosis. *Archives of General psychiatry* 1981 38: 829-33.
10. Dean C and Kendell RE. The symptomatology of puerperal illnesses. *Brit. J. Psychiat.* 1981; 139: 128-33.
11. May M. Clinical course and outcome of schizoaffective disorders. *Acta Psychiatr. Scand.* 1985; 72: 542-50.
12. May M and Perris C. An approach to the diagnosis and classification of schizoaffective disorders for research purposes. *Acta Psychiatr. Scand.* 1985; 72: 405-13.
13. Levinson DF and Levitt MEM. Schizoaffective mania reconsidered. *Am. J. Psychiatry* 1987; 144: 4: 415-25.
14. Levitt JJ and Tsuang MT. The heterogeneity of schizoaffective disorder; implications for treatment. *Am. J. Psychiatry* 1988; 145: 8: 926-36.
15. Bågedahl-Strindlund M. Parapartum mental illness: timing of illness onset and its relation to symptoms and sociodemographic characteristics. *Acta Psychiatr. Scand.* 1986; 74: 490-6.
16. Agrawal P, Bathia MS, Malik SC. Postpartum psychosis: a study of indoor cases in a general hospital psychiatric clinic. *Acta Psychiatr. Scand.* 1990: 571-5.
17. Paffenbarger RS. Epidemiological aspects of parapartum mental illness. *British Journal of Preventive and Social Medicine* 1964; 18: 189-95.
18. Paffenbarger RS. Epidemiological aspects of mental illness associated with childbearing. In: *Motherhood and mental illness*. Brockington IF and Kumar R. Eds. London: Academic Press. 1982.
19. Pugh TF, Jerath BK, Schmidt WM, Reed RB. Rates of mental disease related to childbearing. *New England Journal of Medicine* 1963; 268: 1224-28.
20. Kendell RE, Wainwright S, Hailey A, Shannon B. The influence of childbirth on psychiatric morbidity. *Psychological Medicine* 1976; 6: 297-302.
21. Kendell RE, Chalmers JC, Platz C. Epidemiology of puerperal psychoses. *Brit. J. Psychiat.* 1987; 159: 662-73.

22. Platz C and Kendell RE. A matched-control follow-up and family study of "puerperal psychosis". *Brit. J. Psychiat.* 1988; 153: 90-4.
23. Katona CLE. Puerperal mental illness: comparisons with non-puerperal controls. *Br. J. Psychiat.* 1982; 141: 447-52.
24. Kadrmas A, Winokur G, Crowe R. Postpartum mania. *Brit. J. Psychiat.* 1979; 135: 551 - 554.
25. Leonhard K. *The classifications of Endogenous Psychoses*: New York: Irvington Publishers 1979.
26. Perris C. A study of cycloid psychosis. *Acta Psychiatr. Scand.* 1974; suppl: 253.
27. *Diagnostic and statistical manual of mental disorders. Third edition - Revised.* American Psychiatric Association 1987.
28. Crow TJ. The continuum of psychosis and its implication for the structure of the gene. *Brit.J. Psychiatry* 1986; 149: 419-29.
29. Bratfos O and Haug JO. Puerperal mental disorder in manic depressive females. *Acta Psychiatr. Scand.* 1966; 42: 285-94.
30. Reich T and Winokur G. Postpartum psychoses in patients with manic depressive disease. *J. of Nervous and Mental Disease* 1970; 151: 60-8.
31. Kendell RE. Emotional and physical factors in the genesis of puerperal psychosis. *J. of Psychosom. Research* 1985; 29: 3-11.

CHAPTER V

PROGNOSIS AND LONG-TERM COURSE IN POSTPARTUM PSYCHOSES. A FOLLOW-UP STUDY (1967 - 1989).

J.L. Klompenhouwer, W.J. Schudel and P.G.H. Mulder.

PROGNOSIS AND LONG-TERM COURSE IN POSTPARTUM PSYCHOSES.

A FOLLOW-UP STUDY (1967 - 1989).

Introduction.

In previous chapters we have elaborated on the exact symptoms, clinical features, classification and short-term outcome of postpartum mental illness. We did not consider the longterm outcome and prognosis. However, this may be of particular interest in establishing the risk of recurrence after subsequent pregnancies and the frequency and nature of non-puerperal episodes of mental illness. If puerperal psychosis merits the status of a completely independent and mono-causal disease entity one would expect the patients to have a high recurrence rate after subsequent pregnancies and a low incidence of episodes of non puerperal mental illness. This is clearly not the case in puerperal psychoses. In a previous study (1) we demonstrated that approximately 25% of the patients suffered psychiatric illness prior to the index illness and that psychiatric morbidity among their first degree relatives is frequently found as well (37%). In addition to this evidence, previous follow-up studies (2-5) indicate that an important percentage of the patients with puerperal mental illness will eventually also suffer a non puerperal episode of mental illness. However, it still can not be excluded that within the total of postpartum mental illness a subgroup of patients may be indentifiyable with exclusively childbirth-related episodes of psychoses. (3)

A second objective of this study is to determine the value of a selected number of clinical features concerning the index illness in predicting the longterm course. This will be done by linking the results of the follow-up study to items of information about the index illness gathered in the course of previous studies (1, 6). Compared to previous follow-up studies concerning postpartum mental illness (2, 7) this study has the advantage of allowing a determination of the usefulness of a selected number of factors in establishing a prognosis. These selected factors, with possible predictive value as to the longterm course of illness, are different aspects of the index illness such as: the RDC classification of the index illness, a classification in accordance with classical concept of "puerperal psychosis" (8), the presence of confusional symptoms (disorientation, confusion and perplexity) (8), the duration of the index hospitalization (1), and the presence of a personal history of psychiatric illness prior to the index illness (1).

Method.

The 238 women with postpartum mental illness admitted to the mother-and-baby unit of the Rotterdam University Hospital Dijkzigt between 1967 and 1989 were the subject of this study. An attempt was made to trace the recent addresses of these women through the municipal civil registration office of their original domicile. Of the 238 women 9 had moved abroad. Of the remaining 229 patients the address could not be traced in 11 cases, although it was established that they were alive. Another 9 women had died, the causes of death of these patients will be presented in the results section of this study. In total the addresses of 209 women were at our disposal. Of these women 5 were permanently living in a psychiatric hospital. Due to the fact that the information we intended to gather in this group of patients could best be adequately answered by their general practitioner (G.P.), we decided to approach the patients G.P.'s. An effort therefore was made to find the address of their general practitioners (G.P.). With an average interval of 11 years between index admission and follow-up this presented considerable problems; patients had moved or changed from general practitioner without leaving an address. It caused the loss of 90 cases for follow-up. In all, 119 cases were available for follow-up. Despite this set-back the study was continued as it was considered probable that not tracing the G.P.'s does not represent an important selection bias in relation to the aim of this study. Moreover the 119 cases available still represent the largest follow-up study of postpartum mental illness published so far. Questionnaires were sent to 114 general practitioners and five psychiatric hospitals.

The questionnaire contained four basic questions to be answered by the general practitioner. The first item concerned the frequency of contacts with mental health institutions (MHI) after the index admission. (No contacts with MHI, incidental contact with MHI, repeated contacts with MHI and chronic inpatient treatment). The second item concerned the nature of this treatment by tracing who was responsible for this treatment (G.P., out-patient psychiatric service or admittance to a psychiatric hospital).

The classification of psychiatric illness detected over the years, if any, was addressed in the third question. However, in interpreting the latter findings we will have to take into account that the reliability of psychiatric classifications without strict criteria is low. As we requested 114 G.P.'s to do so, interpreting the results regarding this classification will have limitations. Therefore a comparison of the follow-up classification with the original RDC classification of the patients will not be made. The last item in the questionnaire referred to subsequent childbirths after the index illness and the possible recurrence of postpartum mental illness in these patients. Although this questionnaire has limitations in accuracy we considered it an acceptable tool in creating a general

picture of the long term course and outcome of postpartum mental illness.

Of the 119 questionnaires sent out, 99 (82%) were returned containing the information requested. (96 questionnaires were returned by G.P.'s and 3 by psychiatric hospitals). If we include the nine patients who died, information on 108 women (45,4% of the original sample $n = 238$) was available to us.

Statistical tests (Chi-square, Fisher's exact test) were performed using the Statistical Package Social Sciences (SPSS/PC+). A p value less then 0,05 was considered significant.

The results of the follow-up study were expressed in percentages of the sample but also as rates per thousand person years (Rate/1000 p.y.) to make sure that the presented figures are corrected for the influence of the lenght of the follow-up period.

Results.

Of the 229 women this study initially started with, nine were deceased at follow-up (4%). Three patients died in hospital during the index illness due to organic causes (Table I. $\Delta t = 0$).

Of the latter patients, one died because of an idiosyncratic reaction to neuroleptic medication, a second patient died because of cerebral haemorrhage (aneurysm), and a third patient because of lung embolism. These patients were initially admitted to the mother-and-baby unit because of postpartum psychosis but developed complications of organic nature (post aut propter) and died. This finding points to the fact that although rare, postpartum psychosis may mask or coincide with severe organic illness. It can be concluded that the mortality rate of the index illness (case fatality rate)in our sample is 1,3% ($n=3$).

Table I.

Cause of death and years between index illness and moment of death (Δt) in nine patients.

No.	Cause of death	Δt
1	idiosyncratic reaction to neuroleptics	0
2	cerebral haemorrhage (aneurysm)	0
3	lung embolism	0
4	multiple myeloma	17
5	suicide	15
6	cardiac arrest	2
7	suicide	9
8	suicide	1
9	complications of aorta stenosis	2

In three of the remaining six patients the cause of death was initially unknown to us. However, they were kindly put as our disposal by the Netherlands Central Bureau of Statistics (Centraal bureau voor de statistiek). In the follow-up period three patients died of natural causes and another three patients committed suicide, one, nine and fifteen years respectively, after the index illness (Table I). In the total sample of 229 patients the average time between index illness and moment of follow-up was 11,6 years (median 11,0 years, standard deviation 6,3 years). These results indicate that within the context of the Netherlands the suicide rate after hospital treatment of postpartum mental illness is 1,13 per thousand person years. Although this risk does not appear alarming, it is approximately 20-fold increased compared to the risk for women (younger than 65 years) in the population at large in the Netherlands (Vademecum of health statistics in the Netherlands, 6,5 suicides per 100.000 in 1980 (= 0,065 per thousand person years).

Of the 209 women whose address was at our disposal 5 became permanently hospitalized during follow-up. It allows the conclusion that after an average follow-up of 11 years 2,5% of the patients are permanently hospitalized and 97,5% of the patients are still living in the community.

These figures illustrate that postpartum mental illness seldom follows a severely incapacitating course. In the sample of 99 women, whose questionnaire was returned with adequate information, the average number of years between the index illness and follow-up was 10,3 years (median 9,0 years). The follow-up time ranged from 2 to 22 years, and the standard deviation was 6,4 years.

All index illnesses were classified according to RDC. The results of this procedure are discussed in an earlier study (8). The RDC classification of the original sample (n=238) and the cases available for follow-up (n = 99) are presented in table II. The composition of different RDC classifications in the follow-up group is compared to the make up of the original sample.

Table II.

Comparison of the index illness RDC classification of the cases available for follow-up (n = 99) and the original sample (n = 238)

	Follow-up sample (n = 99)		Original sample (n = 238)	
	n	%	n	%
Schizophrenia	4	4,1	12	4,8
Schizoffective mania	21	23,2	51	25,2
Schizoffective depression	2			
Mania, Hypo-Mania and Bipolar	17	17,2	31	12,4
Major Depressive Disorder	9	21,2	19	16,0
Minor Depressive Disorder	12			
Unspecified Functional Psychosis	23	23,2	74	30,0
Other	11	11,1	30	11,6

The composition of the follow up group as to the RDC classification did not significantly differ from the make up of the original sample ($p = 0,13$). We interpreted this finding as a confirmation of the premises that the 99 cases available for follow-up are representative of the original sample.

The frequency of contacts with mental health institutions.

The results on the frequency of contacts with mental health institutions (MHI) after the index illness revealed that only 35% of the patients never contacted a MHI again. (Table III).

Most of the patients (43%) repeatedly had contacts with MHI. If we strip these figures from the effect of patients who exclusively suffered mental illness after a subsequent childbirth, the percentage of patients without contacts with a MHI only rises to 41%. (Twelve patients in the follow-up sample suffered a recurrence of mental illness after a subsequent delivery, but six of these patients also had contacts with MHI because of non-puerperal mental problems.) Table III illustrates that after an average follow-up period of 10,3 years 57% of the patients have at least once again been treated by a MHI (Rate/1000 p.y = 56). In a large majority of these patients the contacts with a MHI took place because of non-puerperal mental illness.

Table III. Frequency of contacts with mental health institutions. (MHI)

	n	%	Rate/1000 p.y
no contact	35	35,4	----
incidental contact	11	11,1	10,8
repeated contacts	43	43,3	42,2
chronic treatment	3	3,0	2,9
unknown	7	7,1	----

The nature of psychiatric treatment.

If we envisage the nature of psychiatric treatment by considering who (or what MHI) treated the patient, a comparable picture emerges (Table IV). If we include the 4 patients exclusively treated by their G.P. (the G.P. is not considered a part of a MHI) the percentage of patients free of any mental health problem after the index illness is even lower (31,3%) than in Table III. Table IV also shows that 18% of the patients were treated by an outpatient psychiatric service without being readmitted (Rate/1000 p.y. = 17,7) and that 40% of the patients were at least once re-admitted to hospital because of psychiatric illness (Rate/1000 p.y. = 39,3).

Table IV. Nature of psychiatric treatment.

	n	%	Rate/1000 p.y.
Never treated	31	31,3	----
Treatment by G.P.	4	4,0	3,9
Treatment by outpatient psychiatric service	18	18,2	17,7
Hospital admittance	40	40,4	39,3
Unknown	6	6,1	----

The influence of patients with exclusively puerperal episodes of mental illness on these figures is limited. If we exclude these patients, 37% of the women were never mentally ill again and 35% of the patients were re-admitted. These results again illustrate that a large majority of the episodes of mental illness after the index admission are non-puerperal.

The course of illness over the years.

The cumulative incidences of the contacts with MHI or the nature of psychiatric treatment over the years illustrate the temporal relationship between recurrences of mental health problems and the index illness. If, after five years follow-up the cumulative incidence no longer increases it means that recurrences of mental illness only occur in close association with the index illness. Table IV and VI clearly illustrate that this is not the case and suggest that the vulnerability to mental problems in these patients remains a constant factor. The percentage of women with repeated contacts with MHI increases from 31% after a follow-up period of five years or less, to 61,5% after an interval of fifteen years or more since the index illness (Table V).

Table V. Cumulative incidence of contacts with MHI, over the years.

Follow-up period in years	2 - 5		6 - 10		11 - 15		15 - 24	
	n	%	n	%	n	%	n	%
no contact	15	(51,7)	11	(40,7)	9	(52,9)	6	(23,1)
incidental contact	2	(6,4)	3	(11,1)	--	--	--	--
repeated contact	9	(31,0)	10	(37,0)	8	(47,1)	16	(61,5)
chronic treatment	1	(3,4)	1	(3,7)	--	--	1	(3,8)
unknown	2	(6,9)	2	(7,4)	--	--	3	(11,5)
total	29		27		17		26	

The same trend can be found in Table VI with regard to the nature of psychiatric treatment. The percentage of patients readmitted to hospital at least once because of psychiatric illness increases from 20% at five years or less follow-up to 50% after an interval of fifteen years or more since the index illness. However, the figures regarding hospital admissions in table VI also suggest that the percentage of patients re-admitted increases until approximately fifteen years after the index illness, but subsequently stabilizes at 50%. If the rate of hospital admissions did not change over the years a linear increase of the cumulative incidence would have been expected.

Table VI. Cumulative incidence of nature of psychiatric treatment, over the years.

Follow-up period	0 - 5		5 - 10		10 - 15		15 - 24	
	n	%	n	%	n	%	n	%
Never mentally ill	13	(44,8)	9	(33,3)	9	(52,9)	6	(23,1)
Treatment by G.P.	2	(6,9)	2	(7,4)	--		--	
Treatment by outpatient-psychiatric service	6	(20,7)	7	(25,9)	--		4	(15,4)
Hospital admittance	6	(20,7)	8	(29,6)	8	(47,1)	13	(50,0)
Unknown	2	(6,9)	1	(3,7)	--		3	(11,5)
Total	29		27		17		26	

Classification of psychiatric illness during the follow-up period.

We demonstrated in table IV that at after an average of 10,3 years follow-up approximately 60% (n = 62) of the women have at least once been treated by a MHI. The G.P.'s were asked under what classification patients were treated (Table VII). Although the reliability of this classification has limitations, it can be concluded that 55 - 60% of the patients treated because of mental illness during the follow-up period, are classified as affective disorders (unipolar depression or bipolar affective disorder).

Table VII. Classification of mental illness after the index episode.

	n = 62	%
schizophrenia	4	(4,0)
schizoaffective disorder	1	(1,0)
bipolar disorder	19	(19,2)
unipolar depression	16	(16,2)
unspecified psychosis	8	(8,1)
other psychiatric disorder	6	(6,1)
unknown	8	(8,1)
no mental illness	n = 37	(37,4)

These results lend support to the well established association between postpartum mental disorders and affective disorders (9-11). It also indicates that postpartum psychiatric disorders are generally unrelated to the development of schizophrenia.

However these results cannot be interpreted as an indication that all psychiatric disorders postpartum are manifestations of a life-time vulnerability to affective disorders. There is still a large group of patients without a recurrence of mental disorders at follow-up (37%), a small group of patients with exclusively childbirth related episodes of mental illness at follow-up (6%) and a group with mixed disorders. Under "unspecified psychosis" are grouped various classifications made by the G.P.'s such as paranoid psychosis, hysterical psychosis, psychogenic psychosis and

reactive psychosis.

The classification "other psychiatric disorder" includes a ragbag of classifications such as personality disorders, anxiety state, pre-psychotic condition, alcoholism and organic brain syndrome.

Recurrences after further pregnancy and delivery.

The previous episode of postpartum mental illness in these patients (n = 99) did not deter 29 of them from at least one further pregnancy and delivery (Table VIII). Of these 29 women, 12 had a recurrence of postpartum psychiatric disorder after a subsequent pregnancy (Table IX), leading to a recurrence rate for patients of 41,4%.

Table VIII. Number of subsequent children.

	n	%
No more children	64	(64,6)
1	25	(25,3)
2	2	(2,0)
3	1	(1,0)
4	1	(1,0)
unknown	6	(6,1)

The 29 women described gave birth to a total of 36 children after the index illness. Of these 36 pregnancies, 15 were followed by an episode of psychiatric disorder, resulting in a recurrence rate for further deliveries of 41,6%.

Table IX also illustrates that 11 of the patients suffered only one recurrence of postpartum psychiatric disorder but that one of the patients relapsed no fewer than 4 times after subsequent deliveries.

Table IX. Number of recurrences of psychoses postpartum.

	n	%
no relaps	81	(81,8)
1	11	(11,1)
4	1	(1,0)
unknown	6	(6,1)

Eight of the patients with a recurrence of psychiatric illness had to be readmitted to a psychiatric hospital, three were treated by a joint effort of G.P. and outpatient psychiatric service and in one case the nature of treatment was unknown.

The relationship between the RDC classification of the index illness, and prognosis.

The composition of the follow-up sample in relation to the RDC classification of the original sample has been discussed in table II. To be able to create a general picture of the relationship between the RDC classification and longterm outcome we grouped the scores on the frequency of contacts with mental health institutions (MHI) in two categories. (Table X) The first column (favorable outcome) consists of women with or without incidental contacts with MHI. The second column (less favorable outcome) consists of the patients with repeated or chronic contacts with MHI. When interpreting these results it is important to realize that even in the group with "less favorable outcome" all but three patients are still living in the community. This is indicative of the favorable prognosis of postpartum mental disorders in general.

Table X. Relationship between RDC classification of index illness and the frequency of contacts with mental health institution.

RDC	N	favorable outcome		less favorable outcome		unknown	
		n	%	n	%	n	%
Schizophrenia	4	--		4	(100)	--	
Schizomania	21	7	(33,3)	12	(57,1)	2	(9,5)
Schizo depression	2	--		2	(100)	--	
Bipolar disorder	17	7	(41,2)	10	(58,8)	--	
Major depression	9	3	(33,3)	5	(55,6)	1	(11,1)
Minor depression	12	8	(66,7)	2	(16,7)	2	(16,7)
Unsp.Func.Psych.	23	14	(60,9)	7	(30,4)	2	(8,7)
Other	10	6	(60,0)	4	(40,4)	--	

Although the numbers in some classifications are small, table X allows some general conclusions. Within expectation the best prognosis was found in patients with (non-psychotic) minor depression. This is illustrated by the fact that 66% of these women are having incidental or no contacts at all with mental health institutions. It is remarkable that the results for unspecified functional psychosis are in the same range (61% with favorable outcome) as in the previous category of a non-psychotic disorder. However compared to major depression, bipolar disorder and schizomania the apparent more favorable prognosis for unspecified functional psychosis postpartum did not reach statistical significance, ($p = 0,058$ and $p = 0,065$ resp.) but clearly indicates a trend in this direction.

The results for major depression, bipolar disorder and schizoaffective mania do not differ a lot. Approximately 30 - 40% of these patients have a favorable, and 60 - 70% a less favorable outcome. Finally, the worst prognosis is found in patients with schizophrenia and schizoaffective depression postpartum.

The classification in accordance with the classical concept of "puerperal psychosis" and prognosis.

An important amount of the patients in this study were originally classified in accordance with the classical concept of "puerperal psychosis" as it is held in the Netherlands and discussed in an earlier article (8).

The exact relationship and overlap with the RDC classification, is likewise discussed in the latter study. The aim of this part of the study is to determine whether differences in long term outcome can be detected between psychotic disorders classified as "puerperal psychosis" and psychotic disorders postpartum not classified as such. To make sure we were comparing psychotic disorders, the sample was first stripped of the categories consisting of non-psychotic disorders (minor depression and other psychiatric disorder) as the relatively favorable prognosis of these latter categories could bias the results. However, the results of the comparison between classical "puerperal psychosis" and psychotic disorders not classified as such showed unequivocally that no differences are detectable in prognosis reflected by either the nature of psychiatric treatment or the frequency of contacts with MHI. (no table presented)

Confusional symptoms.

Earlier studies (8, 12) have demonstrated that confusional symptoms (disorientation, confusion and perplexity) are important features in psychotic disorders postpartum. The status of these symptoms is still debated however, and it may therefore be of interest to establish if the presence or absence of these symptoms during the index illness has any predictive value concerning the longterm course. In order to be able to answer this question a comparison was made between psychotic disorder postpartum with confusional symptoms and psychotic disorder postpartum without confusional symptoms (no table presented). However, no differences in longterm course were detected between these two subgroups, reflected by either the nature of psychiatric treatment or the frequency of contacts with MHI.

Duration of index illness hospitalization and long term outcome.

In a previous study (1) we demonstrated that the average duration of stay in hospital was three months for the index illness. We also demonstrated that there are differences in duration of hospitalization between RDC classifications.

It seems reasonable to take the line that the duration of hospitalization, to a certain extent, reflects

the severity of the index illness. The severity of the index illness is partly reflected by the RDC classification, but important differences in severity are possible within one classification. Therefore it is of interest to establish the predictive value of the duration of hospitalization as an individual parameter. The results of this effort are found in table XI.

Table XI. Duration of index illness hospitalization and the risk of re-admission.

Duration of hospitalization	Re-admitted
	n %
0 - 5 weeks n = 17	2 (11,8)
6 - 10 weeks n = 15	5 (33,3)
11 - 15 weeks n = 26	9 (34,6)
16 - 20 weeks n = 22	10 (45,5)
> 20 weeks n = 17	7 (41,2)

There appears to be a clear relationship between the duration of the index hospitalization and the frequency of readmissions to hospital afterwards. There is a significant trend ($p = 0,045$, 2 sided exact trend test) indicating that the risk of readmission steadily increases from 11,8% at five weeks or less of hospitalization to 45,5% at 16 - 20 weeks of hospitalization because of the index illness. As was shown in table VI, on the cumulative incidence of the frequency of readmissions, differences in the frequency of readmissions could be due to differences in follow up time. However, although considerably divergent (8,5 - 12,4 years), no consistent increase or decrease in the average follow-up period between the groups formed in table XI was found, indicating that the significant trend in the relationship between the duration of the index hospitalization and the frequency of readmissions is not due to differences in follow up time.

These results allow the conclusion that, within the context of the management and treatment of postpartum mental disorder in Rotterdam, the duration of hospitalization for the index illness has predictive value in determining the prognosis.

The relationship between a positive personal history of psychiatric illness prior to the index illness and prognosis.

Childbirth is considered to act as a strong precipitating factor in the onset of mental illness. If we consider women with a previous non puerperal episode of mental illness ($n = 24$) to be more vulnerable than women who have their first episode of mental illness after childbirth ($n = 75$), it is plausible to find differences in long term outcome. The differences can be found in table XII and XIII.

Table XII. The relationship between the presence or absence of a personal history of psychiatric illness prior to the index illness, and the frequency of contacts with MHI.

	Positive personal history of mental dis. n = 24		No personal history of mental dis. n = 75		
	n	%	n	%	
no contact	4	(16,7)	37	(49,3)	p < 0,01
incidental contact	--		5	(6,7)	
repeated contact	17	(70,8)	26	(34,7)	p < 0,01
chronic treatment	3	(12,5)	--		
unknown	--		7	(9,3)	

Patients free of psychiatric illness prior to the index illness have a significantly better prognosis. This is illustrated (table XII) by the fact that approximately 50% of these patients never contacted MHI again, in contrast to the subgroup of women with previous mental illness, in which only 17% of the patients remains without contacts with MHI ($p < 0,01$). A statistically significant better prognosis for women without episodes of mental illness prior to the index illness was also found when comparing the proportion of patients with repeated contacts with MHI ($p < 0,01$).

If we envisage the results of the comparison of these subgroups in relation to the nature of contacts with MHI (table XIII), further evidence supporting this conclusions emerges.

Table XIII. The relationship between the presence or absence of a personal history of psychiatric illness prior to the index illness, and the nature of psychiatric treatment.

	Positive personal history of mental dis. n = 24		No personal history of mental dis. n = 75		
	n	%	n	%	
Never treated	3	(12,5)	34	(45,3)	p < 0,001
Treatment by G.P.	1	(4,2)	3	(4,0)	ns
Treatment by outpatient-psychiatric service	5	(20,8)	12	(16,0)	ns
Hospital admittance	15	(62,8)	20	(26,7)	p < 0,01
unknown	--		6	(8,0)	

The proportion of women never treated because of mental illness at follow-up, is significantly lower ($p < 0,001$) in the subgroup of patients with psychiatric illness prior to the index illness (12,5%), than in the subgroup without prior psychiatric illness (45,3%). The figures concerning the difference in the frequency of readmissions to hospital after the index illness point in the same direction. The proportion of patients admitted to hospital in the subgroup of patients with a positive personal history of psychiatric illness (62,5%) is significantly higher ($p < 0,01$) than in patients without prior psychiatric illness (26,7%).

If we summarize these findings, it is justified to conclude that the psychiatric history of patients with postpartum mental illness is an important predictor of the future course of the illness.

Discussion.

It is justified to put forward that this study has clarified a number of important issues concerning the longterm course and aftermath of postpartum mental disorders. It was established that the case fatality rate in the group of patients admitted to the Rotterdam mother and baby unit was 1,3%. The suicide rate in the aftermath of postpartum mental disorder did not appear to be high (1,13 per 1000 person years). Nevertheless this risk is approximately 20-fold increased compared to the risk for the population at large.

We also confirm the overall favourable prognosis for postpartum mental disorders, reported in most studies (2, 4, 7) but not in all (5). This is illustrated by the fact that after an average follow-up of 11 years 97,5% of the patients are still living in the community and 2,5% of the patients are living in mental hospitals. There are however indications that the overall favourable long term outcome of postpartum mental disorder reported in these studies can be attributed to modern biological treatment strategies. Protheroe (2) attributed the dramatic improvement in the outcome of puerperal psychoses after 1950 to the introduction of ECT in the treatment of these patients. A second indication that the long term outcome is more favourable nowadays than it was five decades ago can be found in a Dutch thesis on this subject, published in 1941. Van Steenbergenvan den Noordaa (13) reported that the long term prognosis of "amentia" is identical to the prognosis of schizophrenia. She came to this conclusions because she found an important amount of these patients to be severely incapacitated and permanently hospitalized. We concluded that with the present state of the art in clinical psychiatry and within the context of the organization of mental health care in the Netherlands postpartum mental illness seldom follows a chronic and severely incapacitating course. However, we also demonstrated that these results do not imply that patients with postpartum psychiatric disorder will never be confronted with mental illness again.

We established that after an average follow-up of 10,3 years the majority of the patients (57%) will, at least once, have called in the help of a G.P. or MHI, because of mental health problems (Rate/1000 p.y. = 56). In a large majority of these patients the recurrences of mental illness were nonpuerperal. The mental health problems occurring in the aftermath of the index illness were serious to such a degree that an episode of hospitalization was considered necessary in 40% of the patients. (Rate/1000 p.y. = 39,3)

The longterm course of the illness, illustrated by the cumulative incidence of events in four subgroups with increasing follow-up periods, shows a steady increase over the years of the proportion of women with repeated contact with MHI. The results on the proportion of women readmitted to hospital show the same trend. However, these results also suggest that the increase in the proportion of women readmitted continues until 15 years after the index illness, but subsequently stabilizes at 50%.

The classification of the mental disorders occurring during the follow-up period indicates that the majority (35% of the sample, and 60% of the women with a recurrence of mental disorder) are classified as affective disorders (unipolar depression or bipolar disorder).

These findings suggest that in the latter group of patients the postpartum episode of mental illness can be interpreted within the context of a life-time vulnerability to affective disorders, with childbirth as the precipitating factor. Although these results support the well established association between postpartum mental illness and affective disorders, they do not necessarily imply that all postpartum mental disorders are (atypical) affective disorders.

The results on the risk of recurrence after subsequent pregnancy and delivery (41,6%) illustrates the massive impact of childbirth on the mental health of these women. The figures we find are in accordance with the figures published in the literature so far (4, 14), although these show a rather large variation (from 20 to 50%) in recurrence rate.

The possibility of identifying a group of patients at high risk of the development of psychoses, and the limitation of this increased risk to a well-defined period of life (in the first four weeks after childbirth), is a unique situation in psychiatry. It creates the opportunity of prophylactic treatment strategies, and fundamental research into factors associated with the recurrence of psychosis. The most promising prophylactic treatment strategy reported so far has been the use of lithium salts immediately postpartum (15).

The search for factors predicting the long term course and prognosis has yielded a number of unequivocal results. We established that there is no difference in long term course and prognosis between patients with psychotic disorder postpartum satisfying the criteria of the classical concept of "puerperal psychosis" and patients with psychotic disorder postpartum not classified as such.

Likewise no evidence is found to indicate that the presence of confusional symptoms during the index illness has predictive value concerning the longterm course of the illness. The predictive value of the RDC classification is weak, although the results presented allow the statement that the worst long term outcome is found in schizophrenia and in schizodepression, and the best prognosis is found in minor depression and unspecified functional psychosis. Strong predictors of the longterm course are the duration of hospitalization for the index illness, and the presence or absence of a personal history of psychiatric illness prior to the index illness. Of the three clinical features mentioned, the psychiatric history of the patient is the most important predictor of the future course of the illness. The findings of this study allow the presentation of two extreme scenario's. An unfavorable prognosis is predictable in women with postpartum psychosis classified according to RDC as schizophrenia or schizodepression, with a relatively long period of treatment in hospital and a personal history of psychiatric illness prior to the puerperal episode. An excellent prognosis in postpartum psychosis can be predicted in women classified according to RDC as unspecified functional psychosis, with a relatively short period of treatment in hospital and free of psychiatric problems prior to the puerperal episode. Although predicting the future for individual patients remains a hazardous occupation, the findings of this study may contribute to a more realistic image of the future and provides the opportunity for both patients and doctors of making a more rational evaluation of the risks involved.

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References.

1. Klompenhouwer JL. Patients with postpartum mental illness: obstetric and sociodemographic characteristics, psychiatric history, treatment and course of illness. Submitted.
2. Protheroe C Puerperal Psychoses: a long term study 1927 - 1964. *Brit. J. Psychiat.* 1969; 115: 9 - 30.
3. Platz C and Kendell RE. A matched-control follow-up and family study of "puerperal psychoses". *Brit. J. Psychiat.* 1988; 153: 90 - 94.
4. Davidson J and Robertson E. A follow-up study of postpartum illness, 1946 - 1978. *Acta Psychiat. Scand.* 1985; 71: 451 - 457.
5. Da Silva L, Johnstone EG. A follow-up study of severe puerperal psychiatric illness. *Brit. J. Psychiat.* 1981; 139: 346 - 354.
6. Klompenhouwer JL, van Hulst AM, Tulen JHM, Jacobs ML, Jacobs BC and Segers F. The symptoms of postpartum psychoses. Submitted.
7. Martin ME. Puerperal mental illness, a follow up study of 75 cases. *Brit. Med. J.* 1958: 773 - 777.
8. Klompenhouwer JL, van Hulst AM. Classification of postpartum psychosis: a study of 250 mother and baby admissions in the Netherlands. *Acta Psychiat. Scand.* 1991; 84: 255 - 261.
9. Bratfos O and Haug JO. Puerperal mental disorder in manic depressive females. *Acta Psychiat. Scand.* 1966; 42: 285 - 294.
10. Reich T, Winokur G. Postpartum psychoses in patients with manic depressive disease. *J. Nerv. Ment. Dis.* 1970; 151: 60 - 68.
11. Kendell RE. Emotional and physical factors in the genesis of puerperal psychosis. *J. Psychosom. Res.* 1985; 29: 3 - 11.
12. Brockington IF, Cernik KF, Schofield EM, Downing AR, Francis AF, Keelan C. Puerperal psychosis, phenomena and diagnosis. *Arch. Gen. Psychiat.* 1981; 38: 829 - 833.
13. Van Steenberghe-van den Noordaa. *Generatie-psychozen*. Proefschrift Universiteit van Amsterdam 1941.
14. Brockington IF, Winokur G, Dean C. Puerperal psychosis. In: *Motherhood and mental illness* pp 37 - 68, Eds. IF Brockington and R. Kumar. 1982 London Academic Press Inc.
15. Stewart DE, Klompenhouwer JL, Kendell RE, van Hulst AM. Prophylactic lithium in puerperal psychosis. *Brit. J. Psychiat.* 1991; 158: 393 - 397.

CHAPTER VI

PROPHYLACTIC LITHIUM IN WOMEN AT HIGH RISK FOR POSTPARTUM PSYCHOSES.

J.L. Klompenhouwer, A.M. Van Hulst, R.C. Van der Mast and F.K. Lotgering.

PROPHYLACTIC LITHIUM IN WOMEN AT HIGH RISK FOR POSTPARTUM PSYCHOSES.

Introduction.

A recent follow-up study of patients with postpartum psychoses treated in Rotterdam (1) demonstrated that the recurrence rate of psychosis after a subsequent pregnancy and delivery is approximately 40% (2 in 5). In the population at large the risk of psychosis postpartum is 1 - 2 ‰ (1 in 500 - 1000) (2, 3). However, for women who suffered a previous postpartum psychosis the risk increases 100 to 200-fold (1, 4, 5). A second well- documented group of patients at high risk of psychosis in the puerperium (1 in 5) are patients with a history of bipolar affective disorder (6, 7). The identification of a group of patients at high risk of the development of psychosis during a well-defined period of life stimulated a number of investigators in developing prophylactic treatment strategies. Both the potential role of hormones (8, 9) and Lithium carbonate were discussed (7, 10, 11). Although no consensus exists on the clinically most relevant treatment strategy a number of clinicians (R.E. Kendell in Edinburgh, D.E. Stewart in Toronto and J.L. Klompenhouwer, A.M. van Hulst and R.C. v.d. Mast in Rotterdam) independently started prophylactic lithium treatment in an attempt to diminish the risk of recurrence of psychosis in these patients. The generally accepted use of lithium salts as a prophylactic agent in the management of patients with bipolar disorders and the experience that lithium salts are the medication of choice in the symptomatic treatment of puerperal psychosis (12, 13) were considered by the authors sufficient justification for the prophylactic use of lithium salts in these patients during the puerperal period. After initial reports on a small number of women (14, 15) the results on a larger sample were published by Stewart et al (16) when clinicians at the above mentioned centres decided to pool their data. The sample was large enough to draw clinical conclusions. The results indicated that prophylactic lithium immediately after delivery is an effective strategy in reducing the recurrence risk in women who have previously suffered from either postpartum psychosis or bipolar disorder. The study presented here can be considered an extension of the contribution of the clinicians in Rotterdam to the original "three centres study". In this study we present the case vignettes of the first (six) patients (A) and the results in sixteen patients given prophylactic lithium after eighteen pregnancies (B).

Method.

Women at high risk of recurrence of psychosis postpartum consecutively referred to the department of psychiatry of the Rotterdam University Hospital Dijkzigt between 1986 and 1992 were proposed to enter the study. In total 16 patients were proposed the prophylactic program and all 16 accepted. Patients were either referred by general practitioners, gynaecologists and psychiatrists or presented themselves during pregnancy. Most of the self-referrals were patients previously treated on the Rotterdam "mother and baby unit" because of postpartum psychosis. To be considered for lithium prophylaxis the women must have suffered at least one previous postpartum psychosis. Women also had to agree to take lithium carbonate after delivery, including regular serum lithium determinations for six months post partum. It was explained to the women that lithium prophylaxis also implied that they were not permitted to breastfeed since breast-milk lithium levels could reach 50% of the maternal serum levels (17). Because of its dopaminergic agonistic activity (possible induction of psychosis) bromocryptine was not used to inhibit lactation (18-20). For this purpose conservative means only were applied.

Women received the prophylactic treatment delivered on the obstetric ward of the University Hospital Rotterdam-Dijkzigt. Between 12 and 24 hours after delivery lithium medication (800 - 1200 mg. daily) was started after reasonable precautions such as the control of renal function and electrolytes. Thyroid dysfunction was also excluded. Serum lithium levels were monitored twice weekly during the first week, weekly for three weeks and than as clinically indicated. Daily visits of the consulting psychiatrist during the ten day admission to hospital allowed a reliable judgment of the mental condition of the women. Insomnia, if present, was treated with the benzodiazepine lorazepam, 1 - 2,5 mg. ante noctum. If the patient developed psychotic symptoms in spite the prophylactic medication they were additionally treated with neuroleptics and transferred to the "mother and baby unit" located at the psychiatric ward of the same hospital. After discharge from hospital the women were followed regularly as outpatients. Lithium was discontinued after six months and regular contacts were maintained up to 9 months postpartum. A standard set of clinical data and information on the women in the study were collected by the investigators. Information was gathered on: 1. The number and classification of all previous non-puerperal and puerperal psychiatric disorders according to Research Diagnostic Criteria (R.D.C. Spitzer et al 1978). 2. The family history of psychiatric illness, including a classification according to R.D.C., if available. 3. The number of days between delivery and the onset of the subsequent postpartum psychosis. 4. The duration of the first puerperal psychosis. 5. The mental condition of the women during the prophylactic lithium program and after discontinuation of lithium carbonate.

6. The nature of co-medication, if any. 7. The number of participations in the prophylactic lithium program. To allow comparison the results are presented in the same structure as the "three centres" article by Stewart et al (16), which includes the results on eight of the sixteen patients presented here.

Results.

A. The case-vignettes of the first six patients treated with Lithium prophylaxis in Rotterdam.

Case vignette 1:

This 31-year-old married woman was first seen at the age of 25 shortly after the birth of her first child. Pregnancy and delivery passed uneventfully and without complications. Yet she developed an episode of psychotic illness in the first week postpartum. Her personal history revealed no prior psychiatric problems. The first day postpartum passed wonderfully, she enjoyed her child and expressed how happy she felt. However on the third day after delivery she became increasingly active and talkative and her happiness reached ecstatic forms. She was incapable of sleeping at night and started writing about the experience of becoming a mother and developed the conviction that she was writing a thesis on the subject. The following days she refused to feed her baby, her condition deteriorated and clouding of consciousness (confusion) appeared. She was admitted to a psychiatric ward on the twelfth day postpartum and she was treated with haloperidol without any significant effect on her symptoms. After lithium carbonate treatment was started she improved slowly, interrupted by an unexpected sudden relapse. Haloperidol-dosage was increased, lithium carbonate continued and again there was a slow recovery phase before she relapsed for the second time. On her second relapse (4 months after the first symptoms) she was transferred to the "mother-and-baby"-unit of the Rotterdam university hospital. On admittance she showed herself to be disoriented in time and place and confused. She expressed grandiose delusions and suffered from pressure of speech, loosening of associations and misrecognitions. Her mood varied between mania and dysphoria. There were no auditory hallucinations. The haloperidol-medication was stopped because of severe extrapyramidal side-effects and the benzodiazepine lorazepam was introduced. The lithium carbonate meanwhile continued. Again there was a slow improvement, but this time her recovery was not followed by a relapse. After a total hospitalization of 7 months she was discharged completely recovered and without any medication. Her family history revealed that her mother had been repeatedly treated because of a major depression. An uncle (brother of mother) killed himself during a depressive episode.

She was next seen six years later when she was pregnant for the second time. During these six years she had been in good health without psychiatric problems but she feared for a recurrence of her postpartum psychosis. After a discussion of the consequences with the couple they agreed to the lithium carbonate

program. She had an uneventful labor and lithium carbonate was started and monitored together with renal function and electrolytes. The serum lithium level was kept between 0.7 and 0.9 mmol/L.

Her mood remained stable and mild insomnia was treated with lorazepam. She left the hospital with her baby in a good condition after 10 days. She had mild depersonalization phenomena during several weeks, but showed no other psychopathological symptoms. Lithium carbonate was stopped after 6 months and she remained well.

Case vignette 2:

This 28-year-old married woman was first seen at 25 years old, one week after the delivery of her first child. She had had an uneventful labor without complications. Her symptoms started on the third day after confinement with excessive talking and a quarrelsome behaviour. She did not sleep at night and the following days her condition deteriorated. She became agitated and assaultive and tried to throw her baby. She heard the voice of God speaking to her and in an aggressive outburst she tried to push her husband over the balcony of their apartment. On admittance there were no confusional symptoms. She showed a childish behaviour and stated she was the most beautiful woman in the world. She suffered from both auditive and optical hallucinations, her mood was predominantly manic with dysphoric outbursts.

She was treated with a combination of perfenazine and lithium carbonate and recovered in a few weeks. The perfenazine medication was stopped and she was discharged after 10 weeks of treatment. She took lithium as an outpatient during 4 months and remained well after discontinuation. Her family history did not reveal any psychiatric disturbances and the postpartum psychosis was her first episode of mental illness.

She was next seen 3 years later during late pregnancy of her second child. She remained in good condition without psychiatric problems during those 3 years, but she feared a recurrence of the postpartum psychosis, especially because she was complaining of crying spells and insomnia at that time. She immediately agreed to prophylactic lithium carbonate program. Within 24 hours after confinement she started on lithium carbonate and was given lorazepam because of sleeping disturbances. Serum lithium levels were kept between 0.7 and 0.9 mmol/L. She showed no psychopathological signs and was discharged after 12 days. She used lithium as an outpatient for 6 months, and remained in good condition after discontinuation.

Case vignette 3:

This 25-year-old married woman was first seen at 21, eight days after the birth of her first child. She delivered at home with the help of a midwife. Parturition went so smoothly that she had the impression that it had not taken place at all. She suffered from insomnia became more talkative on the second day and developed pressure of speech. She was writing short notes nobody could understand. The following days she became more agitated and had difficulties orientating. She mistook her father for her husband (misrecognitions) and her attitude towards the baby became dangerous: she tried to open a button on the

baby's clothes with a small kitchen knife.

On admittance on the eighth day after delivery, she had rapidly changing and shifting confusional symptoms with problems orientating and episodes of distressed perplexity. The clinical picture showed rapid changes; one moment she was agitated combined with loosening of associations, the other moment she was calm and showed retardation. She was preoccupied with the speed of time and experienced misrecognitions. Her mood was predominantly manic and there were auditive hallucinations.

She was treated with a combination of perfenazine and lithium carbonate. In the second week of treatment she was less chaotic and perplexity disappeared. She was capable of taking care of her child and recovered slowly but completely in the following weeks. Perfenazine and lithium carbonate were stopped, she did not relapse and was discharged after 12 weeks of treatment. This patient had never been mentally ill before. Her family history revealed that her mother had been hospitalized once because of a major depression, not related to childbirth. She was not seen until 4 years later during her second pregnancy. Although she had been without mental health problems during the years that passed, she worried a lot about the risk of a second psychotic period postpartum. She immediately agreed with the prophylactic lithium carbonate program and within 24 hours after confinement started on lithium carbonate. She had lorazepam for a few days because of insomnia. Serum lithium levels were monitored and kept between 0.7 and 0.9 mmol/L.

She was discharged after 7 days without psychopathological signs. The further course was uncomplicated, she used lithium for 6 months and remained well after discontinuation.

Case vignette 4:

This 38-year-old married woman encountered psychiatric problems for the first time after she gave birth to her first child when she was 25. Her pregnancy had been complicated by hydramnion and (pregnancy related) diabetes mellitus and ended with a caesarian section. She developed a major depression in the second week following confinement. She was not treated with anti-depressants and was not admitted to a psychiatric ward because she simultaneously developed hyperthyroidism, which at that time was thought to be the cause of her depression. She remembered that she was very depressed and anxious and suffered from anhedonia. She constantly worried something would happen to the baby, but she recovered spontaneously after 6 months. Although she had been free of psychiatric problems prior to the birth of her first child she developed a serious bipolar illness in the following years. She suffered nonpuerperal recurrences of major depression 3 and 5 years later and nonpuerperal episodes of mania 4 and 6 years later. All these episodes were treated either with antidepressants and neuroleptics or lithium carbonate and neuroleptics. Her bipolar illness only stabilized after she accepted prophylactic lithium treatment. She stayed well for 7 years, interrupted by a short hypomanic episode after discontinuation of lithium carbonate because of a minor surgery. Her family history revealed that a brother and a sister had a cyclothymic personality. Her mother (who was not affected) had two sisters who were both treated because of a bipolar disorder. The patient divorced during the period in which her bipolar illness frequently recurred and re-married a few years later.

She wanted a child with her second husband and after discussing it with her psychiatrist she discontinued lithium carbonate and contraceptives. She became pregnant shortly afterwards and remained without psychopathological symptoms during her pregnancy. This second pregnancy passed uneventfully and without complications. Although she did not like the idea of medication postpartum she accepted the prophylactic lithium program in view of the considerable risk of recurrence.

Within 24 hours after confinement she started on lithium carbonate. The serum lithium levels were kept between 0.7 and 0.9 mmol/L. She showed no psychopathological signs and was discharged after 10 days. She remained well post partum (6 months at follow-up) in spite of the fact that she discontinued lithium carbonate (of her own accord) eight weeks after delivery.

Case vignette 5:

This 34-year-old married woman was first seen because of a puerperal psychosis at age 22, 12 days after the birth of her first child. Pregnancy and delivery had been without complications. The psychopathological symptoms started on the sixth day post partum, she suddenly felt anxious and depressed. She became preoccupied with religious matters and developed difficulties concentrating. On the seventh day short moments of extreme anxiety alternated with short moments of ecstasy. She lost sense of time, talked incomprehensible "nonsense", misidentified people and suffered short moments of disorientation. On admittance, the psychiatric picture showed rapid changes. One moment she would be ecstatic and embraced everybody, the next moment she would be extremely anxious showing distressed perplexity. There was a varying degree of confusion and she suffered from optical but not from auditive hallucinations. She had elaborated delusions with a religious content. On the second day moments of great motoric restlessness appeared that could suddenly change into stupor and vice versa. Although moments of depression and elation were present, no consistent manic or depressive picture emerged.

She was treated with a combination of perphenazine and lithium carbonate and she slowly recovered in the following weeks. Although the psychotic picture faded she suffered from severe depersonalization and derealization for a period of 2 months. Eventually she recovered completely, medication was discontinued and she was discharged after 4 months. She stayed well until she gave birth to her second child 4 years later. She was given perphenazine to prevent a recurrence of puerperal psychosis but on the fourth day after delivery the first symptoms emerged. Her condition rapidly deteriorated and a full blown psychosis developed that was phenomenologically almost identical to her first episode. Again she was treated with a combination of perphenazine and lithium carbonate which was followed by a slow recovery with prolonged depersonalization and derealization. Eventually she recovered completely for the second time and left hospital after 3 months without medication. This young woman had never encountered psychiatric problems prior to the birth of her first child. Her family history revealed no first degree relatives with a psychiatric history. However, a grandfather had been treated in a mental hospital; a diagnosis was not known.

When we next saw her, 7 years later, she was in the late pregnancy of her third child. Although she had

been free of psychiatric problems during those 7 years she was very anxious and anticipated a recurrence of puerperal psychosis. She immediately agreed to the prophylactic program with lithium carbonate. Within 24 hours after confinement she was administered lithium carbonate. Serum lithium levels were monitored and kept between 0.7 and 0.9 mmol/L. Insomnia was treated with lorazepam. She showed no psychopathological signs and she left hospital after 11 days. The further course was uncomplicated and she used lithium carbonate for 6 months as an outpatient. After discontinuation she complained about mild depersonalization phenomena during a few weeks. This disappeared spontaneously.

Case vignette 6:

This 29-year-old married woman was referred to us when she was pregnant for the third time. She was the mother of two children (4 and 2 years old). On both prior occasions pregnancy and labor passed without complications. However both puerperal periods were complicated by a severe psychosis for which she had not been hospitalized. In both instances her symptoms started shortly after confinement (at the end of the first week) with a hypomanic episode with elation, extreme activity, decreased need for sleep and the feeling she could handle the problems of the whole world. After a week this hypomanic episode switched into a psychotic depression which lasted several months. She heard the voice of God, expressed the thought that her baby was Jesus but also suffered episodes when she was convinced that something bad had happened to her baby. During her second episode of puerperal psychosis her symptoms were almost identical to the first episode except for the delusional content. She was convinced her child was dead and had been burned. She recovered after three months on a combination of antidepressants and neuroleptics. Hospitalization was probably prevented by the fact that she received massive support and supervision from the religious community of which the couple were members. She came from a family with a strong hereditary tendency to bipolar illness. Both her mother and her brother had prophylactic lithium treatment because of bipolar illness. The patient (apart from her puerperal episodes) had experienced one episode of psychotic depression when she was 16 years old.

She was very anxious that her psychiatric problems would reappear in the puerperium of her third child and agreed to the prophylactic lithium carbonate treatment. Within 24 hours after confinement she started on lithium carbonate. Serum lithium levels were monitored and kept between 0.7 and 0.9 mmol/L. There were no psychopathological signs and she was discharged after five days. During her consultations as an outpatient she expressed great satisfaction with the treatment because she felt better than she had ever felt during previous puerperal periods. The further course was uncomplicated, she used lithium for 6 months and after discontinuing the medication she remained well. She contacted us again two years later when she was pregnant for the fourth time. She had grown so confident about the efficacy of the prophylactic treatment that she preferred to have her baby in a hospital in her home town. Lithium carbonate was administered immediately postpartum and patient left hospital after four days. One of the authors maintained contact with the patient by telephone. She remained well during the postpartum period and after

discontinuation of lithium carbonate.

Note:

When we recently contacted this patient by telephone we were informed that she had lately given birth to her fifth child and was administered lithium carbonate postpartum in accordance with her previous participations in the program. Again she remained well and without psychopathological signs postpartum. Although, the result of this prophylactic lithium administration is not taken into account in the results section of this article, we consider it a confirmation of the efficacy of lithium prophylaxis in this patient.

She suffered two consecutive episodes of postpartum psychosis following the birth of her first two children, but remained without psychiatric problems following three subsequent deliveries, once she accepted prophylactic lithium treatment postpartum.

B. The results of prophylactic lithium following 18 deliveries in 16 patients at high risk for puerperal psychosis.

Since the prophylactic lithium program was introduced in 1986 we saw 16 patients who experienced a previous puerperal psychosis (Table I). Two of these sixteen patients participated twice in the lithium prophylaxis program (nos. 6 and 15). Three women experienced two consecutive episodes of puerperal illness prior to the index delivery (nos. 5, 6 and 16).

In thirteen of the sixteen patients (81%) the puerperal episode was the first manifestation of mental illness. Eleven women (75%) experienced exclusively puerperal episodes of mental illness. None of the patients described here had an onset of symptoms during pregnancy neither had they experienced a previous episode of mental illness during pregnancy.

Table I. Results of lithium prophylaxis in 16 women with previous puerperal psychosis (18 prophylactic treatments).

Patient no.	RDC classification of previous postpartum psychosis.	life time diagnosis	No. of first and second degree relatives with a history of mental illness	No. of prophylactic lithium treatments	Outcome of prophylactic treatment
1	Mania	-	2	1	successfully
2	Schizophrenia	-	0	1	successfully
3	Schizophrenia	-	1	1	successfully
4	Major Depression	Bipolar	4	1	successfully
5	Unspecified func. Psychosis 2 x	-	1	1	successfully, mild symptoms after discontinuation of lithium
6	Bipolar 2 x	Bipolar	2	2	1st successfully 2nd successfully
7	Unspecified func. Psychosis	Unspecified func. Psychosis (Psychogenic)	0	1	successfully
8	Schizophrenia	Bipolar	1	1	successfully, mild symptoms post partum
9	Unspecified func. Psychosis	-	0	1	successfully
10	Schizophrenia	-	0	1	successfully
11	Schizophrenia	-	2	1	successfully
12	Major Depression	-	1	1	successfully
13	Mania	Bipolar	1	1	Mania, short episode
14	Mania	-	0	1	successfully
15	Schizophrenia 2x	-	0	2	1st successfully 2nd Schizophrenia, short episode
16	Unspecified func. Psychosis 2x	-	1	1	successfully

The patients numbered 6, 7 and 13 (table I) were the only women who experienced an episode of mental illness (psychosis) prior to the first puerperal episode. The mean age was 26,5 years (range 21 - 36 years sd 3.6) at the time of the first puerperal psychosis and 31,5 years (range 25 - 39, sd 3.7) at the time of prophylactic lithium treatment. The mean interval between the first puerperal psychosis and the prophylactic lithium administration was five years. All women participating in the lithium prophylaxis program were either married or stably cohabiting.

The R.D.C. classification of all puerperal episodes of psychosis (n = 20) in these 16 patients (Table II) revealed that no episodes were classified as schizophrenia, seven were classified as schizomania, six as unspecified functional psychosis, two as bipolar disorder, three as manic disorder and two as major depression. This is in accordance with previous studies indicating that psychosis in the puerperium are predominantly classified as schizoaffective, affective or unspecified functional psychosis according to R.D.C. (21).

In comparison to the R.D.C. classification of the non-puerperal episodes in five of these women (Table II), the puerperal episodes are more often classified as schizomania and unspecified functional psychosis. The predominance of strictly defined affective disorders in the non-puerperal episodes can be explained by the fact that most of these episodes occurred in women with a lifetime vulnerability to bipolar disorder. These results underscore the well-established fact that childbirth is a strong precipitating factor in the onset of psychosis in women with a lifetime vulnerability to affective disorders (6, 7, 10, 11). However, they do not necessarily imply that all psychoses in the puerperium are affective disorders.

Table II. RDC classification of puerperal and non-puerperal episodes of psychosis.

	Puerperal episodes 16 women, 20 episodes	Non-puerperal episodes 5 women, 11 episodes
Schizophrenia	0	0
Schizomania	7	0
Unspecified func. Psychosis	6	2*
Bipolar	2	2
Manic disorder	3	4
Major Depression	2	3

* psychogenic psychosis

A lifetime vulnerability to bipolar disorder was diagnosed in 4 of the 16 patients (Table I, nos. 4, 6, 8 and 13). One patient (no. 7) had recurrent non-puerperal episodes of psychogenic psychosis (classified according to R.D.C. as unspecified functional psychosis).

A positive family history of psychiatric illness (first- and second-degree relatives) was found in 10 of the 16 patients (62%) and in all patients eventually classified as bipolar.

The mean period between delivery and the onset of mental illness (Table III) in the episode of puerperal psychosis was 6,1 days (range 1 - 21 days). This demonstrates the close temporal relationship between delivery and the onset of psychosis described in these patients. The mean duration of the puerperal psychoses (Table III) was 15,9 weeks (range 8 - 28 weeks).

All patients were administered lithium carbonate in accordance with the prophylactic program described in the methods section. Childbirth took place on the obstetric ward of the University Hospital Rotterdam-Dijkzigt with the exception of the second participation in the program of one patient (no. 6). She preferred to have her baby in a hospital in her home town. The prophylactic lithium program however was conducted in exactly the same way as in Rotterdam. The outcome was monitored by regular contacts by telephone.

Table III. Additional data concerning lithium prophylaxis in 16 women (18 prophylactic treatments).

Patient no.	No. of previous puerperal episodes	No. of non-puerperal episodes	Duration of index psychosis: weeks	Onset of puerperal psychosis: days after delivery.	Co treatment with benzodiazepine (lorazepam) during the first weeks.
1	1	0	28	3	+
2	1	0	10	3	+
3	1	0	12	2	+
4	1	4	26	13	-
5	2	0	15	5	+
6	2	1	13	7	+
7	1	3	11	2	-
8	1	1	18	5	+
9	1	0	12	7	-
10	1	0	11	3	-
11	1	0	24	1	+
12	1	0	10	21	-
13	1	3	8	7	+
14	1	0	12	4	+
15	1	0	24	7	+
16	2	0	20	8	+

Table I illustrates that in sixteen cases no recurrence of puerperal psychosis occurred. The further course during the 6 months lithium administration as outpatients was also uncomplicated in these sixteen patients. All patients remained well after discontinuation although one patient (no. 5) complained about mild depersonalization phenomena for a few weeks. Patient no. 8 showed dysphoria during the first three days postpartum but no psychotic symptoms emerged. On two occasions, patient no. 13 and the second participation of patient no. 15, the program was not successful in the sense that the immediate administration of lithium carbonate did not prevent a recurrence of psychosis. However, the duration of the psychotic episode was much shorter in both patients. When judging the effect of the lithium prophylaxis in patient no. 13, we should also take into account the exceptionally stressful conditions childbirth presented her with. She delivered prematurely (at 29 weeks of gestation). Due to the stress of the imminent premature delivery she hardly slept in the week preceding childbirth. Immediately postpartum her baby was transferred to a neonatological intensive care unit of another university hospital at a distance of 150 km. (Due to the fact that all intensive care beds were occupied). It is highly probable that the extremely stressful puerperal period (especially the lack of sleep) contributed to the recurrence of a relatively mild manic episode from which she recovered in 4 weeks (compared to 8 weeks for the first episode). No explanation, other than the simple fact that lithium prophylaxis is not effective in 100% of the cases, was found for the recurrence of psychosis in patient no. 15. She participated in the lithium program for the second time. Her first participation (after the birth of her second child) had been successful and without complications. However on her second participation psychosis occurred in spite of lithium prophylaxis. Her psychotic episode had the same intensity as her first puerperal psychosis but the duration of the psychotic episode was significantly reduced; 9 weeks compared to 24 weeks after the birth of the first child.

Discussion.

The development of an adequate strategy in preventing the recurrence of postpartum psychoses in patients considered at high risk for such a recurrence, has preoccupied a number of clinicians over the last decades. The first reports on the favourable effect of hormones by Hamilton (9) (a mixture of oestrogens and androgens in oil) and later on by Dalton (8), were either anecdotal or difficult to interpret and reproduce. Moreover, in spite the massive research that has been done on a possible relationship between hormone levels and postpartum mental illness no tenable and reproducible association has been established (22). In view of the rather disappointing and fragmented results with hormones it is not surprising that clinicians at different centers turned to

psychopharmacological strategies. Independently clinicians at different centers singled out lithium carbonate for this purpose, although there were differences as to the moment of administration of lithium carbonate. Clinicians in Rotterdam and Toronto administrated lithium carbonate immediately after delivery but in Edinburgh lithium carbonate was started at 34 weeks of gestation. In a joint report on the experience in these three centers (16) it was concluded that in view of the possible foetal toxicity it is probably the safer course to start lithium immediately after delivery.

Lithium carbonate was well tolerated and in general patients expressed great satisfaction with the program, for it was the first time they could happily enjoy the puerperium.

The recurrence rate of 11% we find in our group of patients corresponds with the figure (10%) found in the "three centers experience". Because we contributed our first eight patients to the latter study a direct comparison of the results would be methodologically unsound.

However, it is acceptable to add our figures (2 recurrences in 18 cases) to the results of the three centers study (2 recurrences in 21 patients) if we leave out the results of the eight patients we already contributed. Because none of the patients we originally contributed suffered a recurrence of psychosis the results of the total sample are somewhat less favorable, i.e., 4 recurrences in 31 patients (13%).

The figures in the literature on the subject of recurrence risks of postpartum psychoses vary between 20 and 50% depending on the risk factor studied (3, 4, 5). A personal history of (bipolar) mental illness, a family history of psychiatric illness (especially affective disorders) and a previous episode of postpartum psychosis are such risk factors. However, in a large majority of the patients in our study more than one of these risk factors are present. A single risk factor is only found in four (nos. 2, 10, 14 and 15) of the sixteen patients. The recurrence rate of 11% we report still falls well below the risk of recurrence if only a single risk factor existed. The recurrence rate of 41% recently reported in a follow-up study of the patients admitted because of postpartum psychosis in Rotterdam (5), also illustrates the value of the prophylactic lithium program in these patients. If we compare the findings of the prophylactic lithium carbonate treatment (2 recurrences in 18 pregnancies) to the recurrence rate in patients without prophylactic treatment, as they appear from the follow-up study, (15 recurrences in 36 pregnancies) the difference is statistically significant ($\chi^2(1) = 3.874$ $p < 0,05$).

The results of this study indicate that prophylactic lithium carbonate treatment is an effective strategy in reducing the risk of recurrence of postpartum psychoses. However, it can not be excluded that the prevention of sleep disturbances through a benzodiazepine (lorazepam) also contributed to the positive results. It is justified to conclude that with a larger number of patients

participating in the prophylactic lithium program the results still support and confirm the conclusions of the original "three centers study". In view of the evidence presented by Post (23), indicating that recurrences of affective psychoses may be yielding the patient progressively more sensitive to reoccurrences of affective episodes (and more refractory to treatment) we advocate an aggressive attitude towards the institution of effective psychopharmacological prophylaxis in patients at high risk for postpartum psychoses.

Although the finding still requires confirmation in a controlled study, our results strengthen the evidence that lithiumcarbonate given immediately after delivery is effective in reducing the risk of recurrence of postpartum psychoses and bipolar disorder in the puerperium.

Note:

There is one patient we did not take into account in the results of this article. Motivated by a previous postpartum mania she consulted us with her husband prior to her second pregnancy, on the recurrence risk of postpartum psychosis and the prophylactic lithium program.

Due to the distance from Rotterdam to their home town the couple eventually decided to have a form of lithium prophylaxis initiated in an other hospital. We are not capable to judge whether the lithium program was carried out adequately due to the fact that we are lacking every detail on how it was performed.

However, we were informed afterwards by her husband that she suffered a recurrence of puerperal mania, although the episode was much shorter.

References.

1. Klompenhouwer JL, Schudel WJ and Mulder PGH. Prognosis and longterm course in postpartum psychoses. A follow-up study (1967 - 1988) Submitted.
2. Paffenbarger RS. Epidemiological aspects of parapartum mental illness. *Br. J. Prev. Soc. Med.* 1964; 18: 189 - 195.
3. Kendell RE, Rennie D, Clarke JA, Dean C. The social and obstetric correlates of psychiatric admission in the puerperium. *Psychological Medicine* 1981; 11: 341 - 350.
4. Brockington IF, Winokur G, Dean C. Puerperal psychosis. In: *Motherhood and mental illness* pp 37 - 68. IF Brockington and R Kumar Eds. London Academic Press 1982.
5. Platz C and Kendell RE. A matched-control follow-up and family study of "puerperal psychoses". *Brit. J. Psychiat.* 1988; 153: 90 - 94.
6. Bratfos O, Haug JO. Puerperal mental disorder in manic depressive females. *Acta Psychiat. Scand.* 1966; 42: 285 - 294.
7. Reich T, Winokur G. Postpartum psychoses in patients with manic depressive disease. *J. Nerv. Ment. Dis.* 1970 151: 60 - 68.
8. Dalton K. Progesteron prophylaxis used successfully in postnatal depression. *Practitioner*, 1985; 229: 507 - 508.
9. Hamilton J. The identity of postpartum psychosis. In: *Motherhood and mental illness*. Brockington IF and Kumar R. Eds. Academic press London 1982.
10. Kadmas A, Winokur G, Crowe R. Postpartum mania. *Brit. J. Psychiat.* 1979; 135: 551 - 554.
11. Targum SD, Davenport YB, Webster MJ. Postpartum mania in bipolar manic-depressive patients withdrawn from lithiumcarbonate. *J. of Nerv. and Ment. Dis.* 1979; 167: 572 - 574.
12. Silberman RM, Beenen F, De Jong H . Clinical treatment of postpartum delirium with perfenazine and lithium carbonate. *Psychiatrica clinica*: 1975; 8: 314 - 326.
13. Klompenhouwer JL, van Hulst AM, de Boer JE. Psychiatrische stoornissen na de bevalling. *Maandblad v. Geestelijke Volksgezondheid* 1988; 3: 269 - 283.
14. Stewart DE. Prophylactic lithium in postpartum affective psychosis. *J. of Nerv. and Ment. Dis.* 1988; 176: 485 - 489.
15. Van Hulst AM, Klompenhouwer JL. The role of prophylactic lithium in prevention of recurrence of puerperal psychosis. In: *the proceedings of the 9th international congress of psychosomatic obstetrics and gynaecology. The free woman: Woman's health in the 1990's*. EV van Hall and W Everaerd. Eds. 1989: 417 - 423. Carnforth, Lancs: Parthenon.
16. Stewart DE, Klompenhouwer JL, Kendell RE, van Hulst AM. Prophylactic lithium in puerperal psychosis. The experience of three centres. *Brit. J. Psychiat.* 1991; 158: 393 - 397.
17. Ananth J. Side effects in the neonate from psychotropic agents excreted through breast-feeding. *American J. Psychiat.* 1978; 135: 801 - 805.
18. Brook NM and Cookson IB. Bromocryptine - induced mania? (letter to the editor) *Br. Med. J.* 1978; 1: 790.
19. Johnson JM. Treated mania exacerbated by bromocryptine. *Am. J. Psychiatry* 1981; 138: 7: 980 - 982.
20. Serby M, Angrist B, Lieberman A. Mental disturbances during bromocryptine and lergotriple treatment of parkinson disease. *Am. J. Psychiatry* 1978; 135: 10: 1227 - 1229.

21. Klompenhouwer JL, van Hulst AM. Classification of postpartum psychosis: a study of 250 mother and baby admissions in the Netherlands. *Acta Psychiat. Scand.* 1991; 84: 255 - 261.
22. George A and Sardler. Endocrine and biochemical studies in puerperal mental disorders. *Motherhood and mental illness 2*, Kumar R and Brockington IR Eds. Butterworth & Co. London 1988.
23. Post RM. Transduction of psychosocial stress into the neurobiology of recurrent affective disorder. *Am. J. Psychiatry* 1992; 149: 8: 999 - 1010.

CHAPTER VII

PUERPERAL PSYCHOSIS

**A STUDY BASED ON THE PHENOMENOLOGY OF PATIENTS WITH TWO
CONSECUTIVE POSTPARTUM PSYCHOTIC EPISODES.**

PUERPERAL PSYCHOSIS

A STUDY BASED ON THE PHENOMENOLOGY OF PATIENTS WITH TWO CONSECUTIVE POSTPARTUM PSYCHOTIC EPISODES.

Introduction.

Both the clinical features and the nosology of puerperal mental illness have received medical attention since the time of Hippocrates. However the nosology and classification still remains a subject of controversy. Although many authors acknowledge the fact that puerperal psychoses have distinct features they are generally classified as affective disorders with atypical manifestations (1 - 3).

However there is a growing body of evidence indicating that within the total of postpartum mental disorders and alongside (or overlapping with) affective disorders a "puerperal psychosis" may be differentiated that deserves a special status (4 - 8). Perris (9) put forward that this life-event related "puerperal psychosis" is not a disease entity on its own, but should be interpreted within the lifetime vulnerability related concept of cycloid psychosis.

Since the international debate about the classification and the presence or absence of specific clinical features seems to go around in circles it is justified to question the tools by which we study puerperal psychosis and from where the arguments used in this debate are derived. It is highly improbable that further use of the classification systems based on the kraepelinian dichotomy such as RDC and D.S.M. III-R are going to clarify this issue. Numerous studies have shown (1, 6 - 8, 10, 11) that a large percentage of the postpartum mental illnesses have "atypical" features and will be classified in an intermediate position between accepted "disease entities" (schizo-affective disorder) or are unclassifiable within the Kraepelinian dichotomy (unspecified functional psychosis).

Intensified use of the different classification systems with the same basic syndromal structure, the Kraepelinian order and hierarchy, would be like trying to run faster in a conceptual treadmill. At the end of our effort, the same basic questions would still not have been answered.

As the modern classification systems are based on the clustering of individual symptoms into syndromes leading to separate "nosological entities" the author hypothesized that we were not looking at the correct cluster of symptoms or were looking at them in the wrong hierarchical order. The question that immediately arises is how to establish a cluster of symptoms that may have any conceptual validity. To be accepted as a clustering of symptoms leading to a

distinguishable "syndrome", a number of criteria would have to be fulfilled.

Kraepelin quoted by Jaspers 1965 (12) put forward that a "disease entity" should have its own distinct cause, basic psychological structure and symptoms, course, outcome and cerebral pathology. There is no generally accepted psychiatric syndrome or "disease entity" satisfying all the above mentioned criteria (12). Even globally accepted nosological entities such as schizophrenia and manic-depressive disorder only satisfy two or three of these criteria.

This subject is notoriously difficult as was demonstrated by Kendell and Brockington (13), who described a method to identify genuine boundaries between syndromes by detecting a non-linear relationship between symptomatology and outcome. They applied the technique to the putative boundary between schizophrenic and affective psychosis but could not demonstrate such a non-linear relationship. In this study we will make an attempt to identify different psychopathological syndromes in postpartum psychoses through differences in clinical features, while initially ignoring the usual Kraepelinian dichotomy between schizophrenia and affective disorders. All patients in this study share the same precipitating factor in the onset of psychosis, (childbirth), are of the same sex and in the same age range, thus creating a homogeneous group. Under these relatively controlled circumstances an attempt to find new boundaries between syndromes or affirm old ones may not be "a priori" futile.

Method.

In order to be able to approach the issue from the individual symptoms as well as the RDC classification we decided to study in detail the case registers of all women admitted to the mother and baby unit of the Rotterdam University Hospital "Dijkzigt" between 1967 and 1988. Special attention was paid to the women with two consecutive postpartum psychotic episodes, since it was considered probable that distinct clinical features, if any, should be detectable in this group. In total there were 281 admissions. Because of the epidemiological evidence indicating that childbirth is the precipitating factor in the onset of these psychoses, patients with an onset of symptoms before delivery ($n = 31$) were excluded to make sure we were studying postpartum mental illness. The remaining patients all had an onset of symptoms within the 3 months following delivery. The 250 admissions were derived from 238 patients. Twelve women were admitted twice because of a puerperal mental disorder. The second admissions were considered as a separate case as regards clinical features and classification. The women with two consecutive episodes are the focus of the first part of this study. The case-registers contained detailed day to day descriptions of the patients' behavior and verbalizations. Three times a day notes were made by qualified nurses on

the patients behavior, utterances, presented symptomatology, the content of conversations with the patient, attitudes towards the baby and other persons, thus covering an important part of behavior and experiences of the patients. Nurses were especially instructed not to give interpretations on behavior and symptomatology, but to give a detailed and exact description of the behavior and utterances of the patient. Notes were also made by doctors on psychiatric examination, anamnestic and heteroanamnestic information, biography, physical examination and course of illness.

The presence or absence of individual symptoms was scored retrospectively on a symptom checklist (see addendum) that was designed on the basis of the usual psychiatric symptomatology but also contained a number of items derived from the classical concept of puerperal psychosis as it is held in the Netherlands and discussed in an earlier study (8). A symptom-checklist had to be designed because an important part of the symptoms and clinical features aimed at in this study are not represented in any globally accepted symptom checklist. This is illustrated by the fact that symptoms such as disorientation, confusion, perplexity, depersonalization, misrecognitions and thematic delusions (i.e. delusions related to mothering, labor and the child) are not adequately described in usual nosological categories and carry no weight in the classification according to RDC. A number of clinical features considered of primary importance in the management of these psychoses i.e. suicidal acts and ideation, aggressive acts and child directed aggression were also added to the checklist. The checklist was completed by items related to the course of the illness, i.e. the number of relapses and the so called kaleidoscopic picture (rapid changes in the presented symptomatology).

Due to the limitations of a retrospective and case-register study the symptom checklist did not contain meticulous detail of individual symptoms such as "third person verbal hallucinations". Too much specific detail would have undermined the reliability of the score and as an extension of this the validity of the checklist. Therefore the items in this checklist are described in lesser detail such as "auditive hallucinations" for which practically all case registers contained more than sufficient reliable information. If the presence or absence of the symptom could not be established with certainty the symptom was not scored (or scored dubious), resulting in a "missing value". The frequency of the symptom is expressed as a percentage of the number of cases in which the presence or absence of the symptom could be scored in a reliable way (valid case). The frequency of the number of "valid cases" lies between 92 and 100% for the various individual items.

Symptoms and classification were evaluated by the first two authors after interrater sessions. For the symptom checklist an agreement of 90% was aimed at and reached. The reliability and reproducibility of the RDC classification was checked by calculating a coefficient of interrater agreement for nominal scales (10) yielding a K (Kappa) of 0.79. In order to assess differences in

the frequency of individual symptoms between classifications statistical tests (Chi-square, Fishers's exact test) were applied using the Statistical Package Social Sciences (SPSS/PC+). A p value less than 0.05 was considered indicative of a significant difference.

Other relevant information, i.e. time of onset of illness and personal and family history of psychiatric illness were also extracted from the case-notes. In the first part of this article we will study the clinical features of postpartum psychoses in patients with two consecutive postpartum episodes. As the study of the usual discriminating symptomatology, such as the presence of hallucinations, affective symptoms, delusions, thought disorder etc. has produced the circular debate mentioned earlier, they will at first be ignored in favor of the so called "atypical symptoms". If among these "atypical" symptoms, clinical features and symptoms can be identified that are highly specific to postpartum psychosis in patients with two consecutive postpartum episodes, they will be applied as selection criteria to all cases. In the case of puerperal psychosis it seems evident to add the criterion that psychotic episodes should only occur in close temporal relationship with delivery. On the other hand, if we are too strict on this issue we might exclude the possibility that we are dealing with a disease entity with a special (but no exclusive) tendency to childbirth related breakdown. Studying patients with two consecutive episodes may reveal the importance of this criterion. In the second part of this study the above mentioned "specific" symptoms, if any, will serve as selection criteria to be applied to the symptom checklist of the total sample (N = 250). If these criteria are relevant in identifying different psychopathological syndromes, the presence or absence of these criteria should lead to the identification of two phenomenologically different groups. Differences between groups can be validated if statistically significant differences are found in the frequency of other symptoms or groups of symptoms.

Results.

The clinical features of postpartum psychoses in patients with two consecutive episodes.

The RDC classification of the whole sample (N = 250) is presented in table I. As the severity of illness, especially the distinction between psychotic and non-psychotic, has major influence on the presented symptoms and the individual symptoms are the target of this study, patients with a non-psychotic disorder were excluded. The RDC classification of patients with one registered psychotic episode postpartum (i.e. admitted to hospital once) is presented in the second part of table I. The RDC classification of the episodes of psychosis derived from patients with two consecutive episodes of postpartum psychoses can be found in the third part of table I.

TABLE I.

RDC	Schizophren.		Schizodepress.		Schizomania		Mania and bipolar		Major depress.		Unspecif. func. psychosis		Minor depress.		*other* classific.	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
I total sample N = 250	12	5	12	5	51	20	31	12	19	8	74	30	21	8	30	12
II one psychotic episode n = 179	12	7	12	7	44	25	31	17	18	10	62	35	excluded		excluded	
III two consecutive psychotic episodes n=20	--	--	--	--	7	35	--	--	1	5	12	60	excluded		excluded	

RDC classification of:

- I The total sample N = 250
 II Women with one registered episode of postpartum psychosis, n = 179 (minor depressive disorder and *other* classifications excluded).
 III Women with two consecutive episodes of postpartum psychosis, n = 10 patients with 20 episodes.

The ten patients leading to twenty episodes presented in table I were part of a group of twelve patients admitted twice because of a postpartum mental illness. They were all hospitalized because of a postpartum mental illness after the birth of their first and second child. None of these patients suffered an episode of psychiatric illness between deliveries. The average interval between deliveries was 3,7 years with a variation from 2 to 7 years. All twelve suffered an episode of psychotic illness after the birth of their first child but only ten also developed a psychotic illness the second time. Two patients were excluded because their second episode was non-psychotic. One of these patients experienced a major depressive disorder on the first episode and a minor depressive disorder on the second. The other patient had an unspecified functional psychosis after she gave birth to her first child and an episode that was considered non-psychotic and classified as other psychiatric disorder the second time. Of the remaining ten patients, two (20%) had been mentally ill before the birth of their first child. One patient (nr. 7) experienced an episode of major depression a year before pregnancy, the other patient (nr. 2) suffered an episode of schizo-affective disorder nine years before. The RDC classification of the women with two consecutive episodes presented in table I shows the complete absence of the RDC classifications schizophrenia, schizodepression and mania. Strictly defined affective disorders (mania, depression) and schizophrenia are virtually absent in this subgroup whereas unspecified functional psychosis (60%) and to a lesser extend schizomania (35%) are strongly over-represented compared to the group with one psychotic episode.

These results underscore the problems in classifying postpartum psychosis within the strict Kraepelinian dichotomy. They can also be interpreted in favour of the hypothesis that the group of

patients with two consecutive psychotic episodes is exhibiting the symptoms of a postpartum psychosis "par excellence". It also indicates that a detailed study of the patients with two consecutive episodes may reveal items specific to this puerperal psychosis. Table II illustrates a number of these clinical features with special reference to "atypical" symptoms.

Table II. Patients with two consecutive episodes of postpartum psychosis.

Pat. nr.	RDC Classific.		Δt		Disorientation and/or confus.		Perplexity		Depersonalization		Aggression		Misrecognitions		Thematic delusions		Kaleidoscopic picture		Number of Relapses	
	I	II	I	II	I	II	I	II	I	II	I	II	I	II	I	II	I	II	I	II
1	ASADM	ASADM	7	4	+	+	+	+	-	+	+	+	-	+	-	-	-	+	1	0
2	ASADM	UFP	1	4	+	+	+	+	-	+	+	+	+	+	-	+	+	+	+	+
3	UFP	UFP	8	4	+	+	D	+	+	+	-	-	-	-	-	-	-	-	-	
4	ASADM	MADD	3	5	-	-	+	+	+	+	+	-	-	-	-	-	+	-	1	2
5	UFP	UFP	4	11	+	+	+	+	-	-	+	+	-	-	-	-	+	+	0	0
6	UFP	UFP	7	19	+	+	+	+	+	+	-	+	-	-	+	+	+	+	0	0
7	ASADM	ASADM	9	61	+	-	-	-	-	-	+	-	-	+	+	-	+	-	0	0
8	UFP	UFP	3	16	+	+	+	+	+	+	-	+	-	-	-	-	-	+	0	0
9	UFP	ASADM	5	3	+	+	+	-	+	+	+	+	+	-	+	-	+	-	0	2
10	UFP	UFP	6	4	+	+	+	+	+	+	-	+	+	+	+	+	+	+	1	0

- I = First episode
- II = Second episode
- ASADM = Acute Schizo-Affective Disorder Manic type
- UFP = Unspecified Functional Psychosis
- MADD = Major Depressive Disorder
- Δt = Time between delivery and onset of symptoms (days)
- +
-
- D = Presence of symptom dubious

Of each individual episode the RDC classification, the time between delivery and onset of symptoms and the number of relapses is presented in this table. Likewise the frequency of so called "atypical" symptoms as disorientation and/or confusion, perplexity, depersonalization, the kaleidoscopic picture, misidentifications, aggression and thematic delusions is illustrated in table II.

RDC classification: As was already mentioned, the majority of the episodes were classified as unspecified functional psychosis (UFP) (60%) or acute schizomania (ASADM) (35%). Strictly defined affective disorders were almost absent (5%). The second notable fact is that in 30% of the patients the classification of the first episode is not identical to the classification of the second episode. In the same patient the classification of the different episodes varies between acute schizomania and unspecified functional psychosis (2 patients) and between acute schizomania and

major depression (1 patient).

These results indicate that puerperal psychosis may have different manifestations within one patient. If this is the case it can be concluded that both manifestations must be part of a larger phenomenological descriptive disease entity including and overlapping the phenomenology of the RDC classifications unspecified functional psychosis and acute schizomania.

Time of onset of illness: Of the twenty episodes 75% had an onset of symptoms within one week, 85% within two and 95% within three weeks of delivery. Only the second episode of patient nr. 7 started after the third week (61 days). An interesting observation was that this episode of patient nr. 7 was the only one in which the symptoms disorientation, perplexity and depersonalization were all absent. The observations on the time between delivery and the onset of psychosis in these patients demonstrates how formidable a "psychotogenic" factor childbirth can be in vulnerable women.

Confusional symptoms: Overall, confusional symptoms (disorientation, confusion or perplexity) were part of the picture in 95% of the cases i.e. in all patients during both episodes except for the second episode of patient nr. 7. Disorientation and/or confusion occurred in 85% of the episodes and in all patients in either the first or the second episode. The only exceptions were patient nr. 4, whose second episode was classified as a major depressive disorder and the second episode of patient nr. 7 that started after 61 days. Perplexity was found in 80% of the episodes and in all patients during one of the episodes except patient nr. 7.

Patient nr. 7 differs from the other patients in more than one respect; she is one of the two patients who suffered from an episode of mental illness (major depression) prior to the index illness. Her second episode of postpartum psychosis only started after 61 days and this episode is the only one in which disorientation, confusion, perplexity or depersonalization are all absent.

Depersonalization, the most frequently occurring psychopathological phenomenon in postpartum illness (14), was present in 70% of the episodes and in all patients during one of the episodes, except patients nr. 5 and 7. This "dissociative" symptom is often wrongly attributed to simple psychological mechanisms, such as a bonding disorder in the mother-child relationship or prior traumatic life events. However it is much more probable that it lies in a continuum of disturbances of consciousness (disorientation, confusion, perplexity and depersonalization), and has a very complex aetiological background (14). The presented results indicate that symptoms such as disorientation, confusion and perplexity are highly specific for psychotic episodes developing in close temporal relationship to childbirth and it is tempting to identify them as the nuclear symptoms. However, in more general terms these observations may also be indicative of a relationship between the acuteness of onset of a psychosis and the occurrence of confusional

symptoms.

Aggression was a prominent symptom in approximately half of the patients and in 60% of the episodes. This includes both verbal aggression and aggressive acts towards people (husband, nursing staff, the child.) Suicidal ideation (not represented in table II) was virtually absent.

Misrecognitions were seen in two patients on both episodes and in three patients in one of the episodes. On many occasions husband and father were confused or male nursing staff were identified as father or husband. From a psychodynamic point of view confusing father and husband has been interpreted as the expression of an underlying unconscious psychological conflict. It was also considered as an indication that psychogenic factors may be of aetiological importance in these psychoses. However, its' appearance could also be related to the presence of confusional symptoms. It is not a specific symptom in patient with two consecutive episodes since it was seen in 50% of the patients during one of the episodes and in 35% of all episodes.

Thematic delusions i.e. with a content related to mothering, labor or the child, were present in two patients during both episodes and in three patients during one of the episodes. Although it is a regularly occurring theme during these psychotic episodes it does not appear to be specific for postpartum psychosis since it was present in 35% of the episodes.

The kaleidoscopic picture e.g.: rapid changes and shifts in the presented symptomatology. This appears to be a prominent characteristic of these psychoses since it was found in 90% of the patients during one of the episodes and in 70% of all episodes. In five patients the symptom was part of the picture during both episodes and in four patients it was only present during one of the episodes.

Number of relapses: this item is partly connected with the previous, as it deals with the stability of the presented picture and the course of illness. A relapse was scored if the patient was improving and was stabilized on a level close to recovery for at least two weeks and then suddenly relapsed. Such a relapse occurred in 35% of the episodes and in 60% of the patients in the course of one of the episodes. The second episode of patients nr. 4 and 9 was complicated by two relapses before recovery.

Discussion.

The starting point for this study was the assumption that if there is such a thing as a puerperal psychosis with specific clinical features, these features should be distinguishable in patients with two consecutive episodes of psychotic illness postpartum. Although in this study the number of patients with two consecutive episodes of psychotic illness postpartum is limited, the results on both the temporal relationship between the onset of psychosis and delivery and the frequency of confusional symptoms are unequivocal. The first important finding is the specificity of the close temporal relationship between the onset of psychosis and delivery. Although all patients with an onset of symptoms within three months (13 weeks) of delivery were allowed to enter the study, 95% of the episodes in patients with two consecutive episodes of psychotic illness satisfy the criterion of onset of symptoms within *three* weeks (21 days).

The second highly specific criterion is the presence of confusional symptoms (disorientation, confusion or perplexity). Again, 95% of the episodes in patients with two consecutive episodes of psychotic illness satisfy this criterion. If one accepts the hypothesis that these patients with two consecutive episodes of postpartum mental illness are expressing the symptomatology of puerperal psychosis it can be concluded that the two criteria mentioned above should *both* be met for a classification of puerperal psychosis to be considered. On the basis of these findings a puerperal psychosis can be defined as a confusional psychosis with acute onset in the first three weeks postpartum. Moreover the results after application of the RDC indicate that a considerable part of the psychotic disorders postpartum (68%) do not fulfill the criteria for strictly defined affective disorder or schizophrenia; that is, are classified as either schizoaffective disorder or unspecified functional psychosis. In the patients with two consecutive episodes of puerperal psychosis presented in this study, 95% of the episodes do not fulfill the strict RDC criteria for affective disorder or schizophrenia. Moreover in a considerable percentage of the patients (30%) the RDC classification of the first and second episode of puerperal psychosis is not identical. The variation in classification within the same individual and to a lesser extent the variation between individuals are a strong indication that puerperal psychosis represents (or is part of) a broader phenomenological descriptive disease entity including or overlapping the RDC-classifications unspecified functional psychosis and acute schizomania. Although less specific, criteria such as the polymorphous presentation with rapid changes and shifts in the presented symptomatology, (kaleidoscopic picture) (70%), depersonalization (70%) and to a lesser extent aggression (60%) are important characteristics of these psychotic episodes and may be of additional importance in establishing a diagnostic profile. Criteria such as misrecognitions (35%), thematic delusions (35%)

and a relapsing course (35%) are part of the picture in some patients and confirm the "multi-coloured" aspects of these psychotic episodes but at this stage do not seem specific enough to add to a diagnostic profile. We concluded that the minimum requirements for a puerperal psychosis to be considered are: 1. an onset of symptoms within three weeks and 2. the presence of confusional symptoms. Therefore these criteria will be applied as selection criteria to the symptom-checklist of all patients with a psychotic disorder postpartum. If these criteria are specific enough they should lead to the identification of phenomenologically different groups by the frequency of other symptoms. Such a policy may also be helpful in establishing the correct hierarchical order of clinical features in puerperal psychosis.

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CHAPTER VIII

PUERPERAL PSYCHOSIS:

THE IDENTIFICATION OF A SEPARATE PSYCHOPATHOLOGICAL SYNDROME IN
POSTPARTUM PSYCHOSES.

PUERPERAL PSYCHOSIS:

THE IDENTIFICATION OF A SEPARATE PSYCHOPATHOLOGICAL SYNDROME IN POSTPARTUM PSYCHOSES.

Introduction.

This part of the study deals with the application of selection criteria derived from patients with two consecutive postpartum psychoses to the whole sample.

In chapter VII we concluded that the most specific clinical features derived from patients with two consecutive episodes are: 1. an onset of symptoms within three weeks of delivery and 2. the presence of confusional symptoms (disorientation, confusion and/or perplexity). Both criteria had a specificity of 95%, which means that a "puerperal syndrome" will have to satisfy at least these two criteria. The first aim of this study is establishing the relationship between the two criteria and the RDC classification. From a theoretical point of view it would be an ideal tool if the results respected the strict boundaries of the classical division between schizophrenia and affective disorders and any "puerperal psychosis" would enclose the classifications that do not fulfill the strict criteria (schizo-affective disorder, unspecified functional psychosis) of this classical division. The second aim of this study is to apply the two criteria to the symptom-checklist of all patients with a psychotic disorder postpartum, in order to establish whether or not the application of these two criteria leads to the identification of two phenomenologically different groups.

Method.

The method is described in chapter VII.

Results.

Fig. I shows the breakdown of the sample (psychotic disorders) according to RDC and the number of cases within the different subclassifications that satisfy both selection criteria. Due to missing values in the selection criteria the number of cases with postpartum psychoses is lower ($n = 179$) than the total number of psychotic episodes we initially started with ($n = 199$).

Fig. I.

RDC-classification of patients with post-partum psychoses satisfying both selection criteria I + II

I = onset of symptoms within 21 days from delivery

II = the presence of a disturbance of consciousness (disorientation, confusion, perplexity)

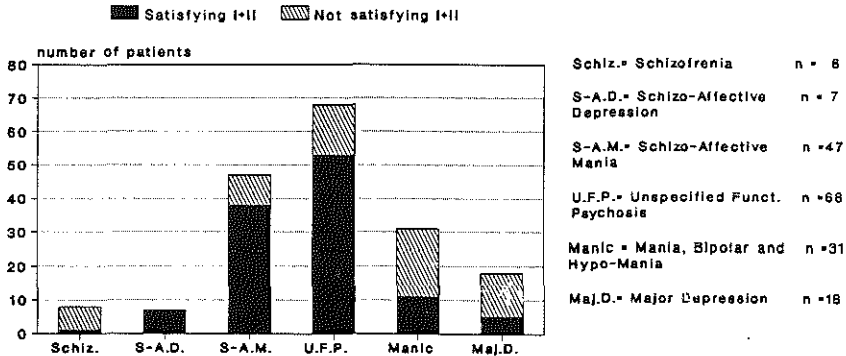


Fig. I illustrates that most cases satisfying both selection criteria are classified as schizoaffective disorder or unspecified functional psychosis according to RDC. This is an indication of the fact that after the application of these criteria the globally accepted concepts of (strictly defined) schizophrenia and affective disorder are respected.

The percentage of patients that satisfy both selection criteria in the RDC categories schizophrenia, manic disorder and major depression (resp. 14%, 36% and 28%) is considerably lower than the percentage of patients that satisfy both criteria in the categories schizo-affective depression, schizo-affective mania and unspecified functional psychosis (resp. 100%, 81% and 83%). If we consider the above mentioned division as separate groups the difference is highly significant $\chi^2(1) = (p < 0,001)$.

The second approach to the identification of a more complete diagnostic profile of this puerperal psychosis is the application of the two selection criteria to the symptom-checklist of each individual episode. If the selection criteria are of value they could lead to the identification of two groups with significant differences in the frequency of other individual symptoms within these groups. In total there were 179 valid cases of postpartum psychosis. The make-up of this group

(RDC classification) can be found in Fig. I.

The results of the procedure concerning the individual symptom-checklists is presented in table I. The group satisfying both criteria (A) consists of 115 cases. The group not satisfying both criteria (B) consists of 64 cases. Of each individual symptom the frequency can be found in table I.

TABLE I. SYMPTOM-CHECKLIST OF 179 CASES OF POSTPARTUM PSYCHOSES

	A n=115		B n=64	
	n	%	n	%
1. Depersonalization	93	86	32	51***
2. Agression; physical acting out	36	11	13	20 ns
3. Agression towards the child (both verbal, fantasies and acting out)	53	47	20	32 ns
4. Agression; all forms	80	70	35	55p=0,06
5. Suicidal ideation	23	20	18	28 ns
6. Tentamen suicidii	8	7	4	6 ns
7. Auditive hallucinations	59	53	21	33*
8. Optic hallucinations	47	42	15	24*
9. Misrecognitions	58	50	5	8
10. Mania (Euphoric mood)	49	43	31	49 ns
11. Depression (Depressive mood)	26	23	23	37 ns
12. Formal thought disorder	17	15	8	13 ns
13. Persecutory delusions	62	54	31	48 ns
14. Delusions of grandeur	31	27	24	38 ns
15. Nihilistic delusions	19	17	7	11 ns
16. Thematic delusions; concerning mothering, pregnancy, delivery, the child.	60	52	8	13***
17. Retardation	26	23	9	14 ns
18. Stupor and mutism	21	18	2	3**
19. Agitated behavior and speech	51	44	34	53 ns
20. Number of relapses (one or more)	53	46	21	33 ns
21. Kaleidoscopic picture	65	57	11	17***

A = Psychotic episode postpartum, onset of symptoms within 21 days from delivery (I) and the presence of disorientation, confusion or perplexity (II).

B = Psychotic episode postpartum with an onset of symptoms within 3 months from delivery that does not fulfil both criteria I and II.

Chi-square test (after Yates corr.)
Not significant = ns

p < 0,05 = *
p < 0,01 = **
p < 0,001 = ***

It can be concluded that postpartum psychoses with an onset of symptoms within three weeks and the presence of disorientation, confusion or perplexity (A) are associated with a number of symptoms that occur in a higher frequency than in postpartum psychoses not satisfying both

criteria (B). When comparing two different groups for 21 items one would, on theoretical grounds, expect to find one significant difference (change finding) in the 5% range ($p < 0,05$). However we find significant differences for 7 items, 4 on a level of $p < 0,001$, 1 on a level of $p < 0,01$ and 2 on a level of $p < 0,05$. Discriminating clinical features are: a kaleidoscopic picture ($p < 0,001$), depersonalization ($p < 0,001$), auditive and optic hallucinations (both $p < 0,05$), misidentifications ($p < 0,001$), thematic delusions ($p < 0,001$) and stupor and mutism ($p < 0,01$). There is also a trend indicating that group A is associated with a higher frequency of aggression ($p = 0,06$), when all forms of aggression are added. (Including physical acting out, verbal aggression, aggressive fantasies and child directed aggression).

Depersonalization is the symptom with the closest association (86%) with both selection criteria. This can be interpreted as an affirmation of the presumed continuum between disorientation, confusion, perplexity and depersonalization. There is no self-evident relationship between the selection criteria and a higher frequency of auditive and optic hallucinations. However it can be concluded that the patients in group A are more hallucinated than these in group B.

Misrecognitions are significantly ($p < 0,001$) more frequent in group A than in group B. This symptom is virtually absent in the sample not satisfying both selection criteria. In group A the symptom was part of the clinical picture in 50% of the cases. Although speculative, it is probable that the occurrence of this symptom is related to the presence of confusional symptoms.

The so called kaleidoscopic picture, that is, a course of illness with polymorphous and shifting symptomatology (sometimes suggesting the presence of several psychotic disorders) is also highly discriminative. The occurrence of severe psychomotor disturbances in the form of stupor and mutism are also associated with the presence of both selection criteria, whereas agitated behavior and speech are not. This is probably due to the fact that most manic episodes according to RDC do not fulfil both criteria (Fig. I). Another conspicuous result is the highly discriminative character of thematic delusions: In more than half of the patients in group A thematic delusions were present against only 13% in group B. Although paranoid delusions were even more frequently seen and other forms of delusion, such as delusions of grandeur and nihilistic delusions, also regularly occurred, it is this typical delusional content that appears discriminative.

The presence of thematic delusions underscores both the psychologic impact of the life event and the possibility of a psychogenic (or reactive) aetiology in these patients (15). The clinical picture to a certain extent also conforms to the description of the Scandinavian concept of a "confusional psychogenic psychosis" (16). However, before running to conclusions on this subject it is important to realize that even in group A (puerperal psychosis) half the patients do not have thematic delusions.

Discussion.

If we summarize our findings, it can be concluded that this search for a "third" psychopathological syndrome in postpartum psychoses has produced strong evidence in favour of such a syndrome. First we extracted two highly specific selection criteria from patients with two consecutive episodes. The application of these criteria to the RDC classification of the whole sample revealed that they virtually respect the boundaries of strictly defined schizophrenia and affective disorders and identify a "puerperal psychosis" that largely overlaps the classifications not fitting this strict division (schizoaffective disorder and unspecified functional psychosis). Discriminating clinical features associated with the two selection criteria and found in significantly higher frequencies in "puerperal psychosis" are depersonalization, misrecognitions, thematic delusions, a kaleidoscopic picture, stupor and mutism and hallucinations. These findings result in a more clearly delineated picture of the classical concept of puerperal psychosis as it was depicted more than 100 years ago by Furstner (17), elaborated and advocated by Hamilton (18). The evidence presented in this study clearly indicates that within the entire sample of psychotic conditions occurring postpartum, the syndrome of puerperal psychosis can be reliably distinguished from schizophrenia, mania and major depression on the basis of its clinical features. Although the psychotic symptomatology is polymorphous the syndrome does not satisfy the strict criteria for schizophrenia, mania or major depression.

As Perris (9) already indicated the puerperal psychosis described above has much in common with his (lifetime vulnerability related) concept of cycloid psychosis. The frequency of thematic delusions however, illustrates the psychological impact of the life event and may suggest a link with other concepts (15, 16) such as the Scandinavian concept of confusional psychogenic psychosis or reactive psychosis.

References.

1. Brockington IF, Winokur G, Dean C. Puerperal psychoses. In: Brockington IF, Kumar R. Eds. *Motherhood and mental illness*. London: Academic Press 1982.
2. Kendell RE, Wainwright S, Hailey A, Shannon B. The influence of childbirth on psychiatric morbidity. *Psychol. Med.* 1976; 6: 297 - 302.
3. Platz C, Kendell RE. A matched control follow-up and family study of "puerperal psychosis". *Br. J. Psychiatry* 1988; 153: 90 - 94.
4. Hamilton JA. *Postpartum psychiatric problems*. St. Louis: Mosby, 1962.
5. Hays P and Douglas A. A comparison of the puerperal psychosis and the schizophreniform variant of manic depression. *Acta Psychiat. Scand.* 1984: 177 - 181.
6. Bågedahl - Strindlund M. Parapartum mental illness: timing of illness onset and its relation to symptoms and sociodemographic characteristics. *Acta Psychiatr. Scand.* 1986; 74: 490 - 496.
7. Agrawal P, Bathia MS, Malik SC. Postpartum psychosis: a study of indoor cases in a general hospital psychiatric clinic. *Acta Psychiatr. Scand.* 1990: 571 - 575.
8. Klompenhouwer JL and van Hulst AM. Classification of postpartum psychosis: a study of 250 mother and baby admissions in the Netherlands. *Acta Psychiatr. Scand.* 1991; 84: 255 - 261.
9. Perris C. The concept of cycloid psychotic disorder. *Psychiatric Developments*. 1988; 1: 37 - 56.
10. Kadrmas A, Winokur G, Crowe R. Postpartum mania. *Brit. J. Psychiat.* 1979; 135: 551 - 554.
11. Katona CLE. Puerperal mental illness: comparisons with non-puerperal controls. *Brit. J. Psychiat.* 1982; 141: 447 - 452.
12. Jaspers K. *Allgemeine psychopathologie*. Achte auflage. Springer-Verlag. Berlin 1965.
13. Kendell RE and Brockington IF. The identification of disease entities and the relationship between schizophrenic and affective psychoses. *Brit. J. Psychiat.* 1980; 137: 324 - 331.
14. Klompenhouwer JL, van Hulst AM, Tulen JHM, Jacobs ML, Jacobs BC and Segers F. The symptoms of postpartum psychoses: A descriptive study based on the case-histories of 250 patients.
15. Mc Cabe MS, Strömgren E. Reactive psychoses. A family study. *Arch. Gen. Psychiatry.* 1975; 32: 447 - 454.
16. Andersen J, Learum H. Psychogetic psychoses. *Acta Psychiat. Scand.* 1980; 62: 331 - 342.
17. Fürstner C. Ueber schwangerschaft und puerperal psychosen. *Archiv. f. Psychiatry.* 1875; 5: 505 - 543.
18. Hamilton JA. *Postpartum psychiatric problems*. St. Louis. Mosby 1962.

CHAPTER IX

CONCLUDING REMARKS AND RECOMMENDATIONS.

CONCLUDING REMARKS AND RECOMMENDATIONS.

Classification and symptomatology.

One of the prime targets of this study was to unravel the exact clinical features of postpartum psychosis and discuss the nosology on the basis of its clinical features.

Although most experts in the field (ICD - 10) are of the opinion that the clinical picture of postpartum psychosis can hardly ever reliably be distinguished from affective disorder or schizophrenia, this study unequivocally refutes this wide-spread dogma and indicates that the syndrome of puerperal psychosis has distinct clinical features.

We have shown that the majority (68%) of the patients with psychotic disorders postpartum do not fulfill the criteria for strictly defined schizophrenia, mania or major depression according to RDC. They are classified as either schizoaffective disorder or unspecified functional psychosis. We have also demonstrated that a number of features considered nuclear within the classical concept of puerperal psychosis are systematically ignored in modern classificatory systems based on the Kraepelinian dichotomy, in spite of the fact that they dominate the clinical picture of puerperal psychosis.

The most conspicuous features in this respect are confusional symptoms (disorientation, confusion, perplexity) and depersonalization. The search for the exact clinical features and classification in patients with two consecutive episodes of psychotic illness postpartum revealed the discriminatory power of confusional symptoms in establishing classificatory guidelines and indicated a clear limitation as to the temporal relationship acceptable between childbirth and onset of psychosis for a puerperal psychosis (3 weeks). The variation in classification between two consecutive episodes in the same individual and to a lesser extent the variation between individuals was interpreted as a strong indication that puerperal psychosis represents (or is part of) a broader phenomenologically descriptive entity including or overlapping the RDC classifications unspecified functional psychosis and acute schizoaffective disorder.

Application as selection criteria of the two most specific clinical features derived from patients with two consecutive postpartum psychoses to the whole sample revealed that these tools are valid in identifying a psychosis with specific features but also *grosso modo* respect the globally accepted boundaries of strictly defined schizophrenia, mania, major depression and bipolar disorder.

The results allow the following clearcut description of the puerperal syndrome:

A puerperal psychosis is an acute psychotic condition with onset within three weeks (21 days) postpartum, characterised by the presence of confusional symptoms (disorientation, confusion or distressed perplexity). The clinical picture is often polymorphous in presentation (hallucinations, delusions and psychotic mood and/or anxiety states) with rapid changes and shifts in the presented symptomatology. Periods of (massive) depersonalization or derealization almost invariably occur during the illness. Although delusions of any kind (especially persecutory) may occur, delusions related to the life event (concerning motherhood, the child or pregnancy and delivery) are considered specific. Misrecognitions of people and to a lesser extent stupor and mutism are strong discriminating factors in support of a classification as puerperal psychosis. Affective symptomatology is often present but does not exclusively dominate the clinical picture.

With adequate treatment patients usually recover completely within a few months, although the short term course is frequently complicated by relapses.

In order to increase diagnostic consistency and facilitate communication concerning clinical syndromes, modern classificatory systems have adopted the operationalization of defined criteria (1). As we consider this a sensible procedure the following criteria for "puerperal psychosis" are proposed:

- A. A psychotic condition with acute onset (a fundamental disturbance of reality testing developing within a few days), manifesting through either hallucinations, delusions, psychotic thought disorders or psychotic mood and anxiety states in any form.
- B. The onset of psychotic symptomatology within 3 weeks (21 days) postpartum.
- C. The presence of confusional symptoms i.e. disorientation, confusion or distressed perplexity. (defined in chapter II.)
- D. Not related to the use of drugs or any gross organic brain pathology.
- E. Not fulfilling the restricted criteria of either schizophrenia, mania, major depression or bipolar disorder according to RDC.

A through E are required for the classification puerperal psychosis to be valid. For a definite classification of puerperal psychosis one or more of the clinical features F through J is also required.

- F. Prominent depersonalization or derealization phenomena.
- G. A kaleidoscopic clinical picture, that is rapid changes and shifts in the presented symptomatology; the symptoms may be suggesting different psychotic disorders including psychotic mood and anxiety states.
- H. Thematic delusions, that is related to the life event such as delusions concerning motherhood, the child or pregnancy and delivery.
- I. Misrecognitions of people, such as confusing father and husband or male nursing staff.
- J. Episodes of stupor and mutism.

This study also acknowledges the fact that besides the puerperal psychosis described above, an important part of the mental disorders postpartum are in fact affective disorders. (Approx 30 - 40% of the sample). Schizophrenia, however, is not frequently encountered postpartum (5% of the sample). Affective disorders postpartum are found in patients with a lifetime vulnerability to affective disorders with childbirth as the precipitating factor for this particular episode. The well established fact that women with a personal or family history of bipolar affective disorder are at high risk (approximately 20%) of a puerperal breakdown is also consistent with the evidence provided.

The international literature on this subject shows a dominating trend in taking the stand that, with reference to the pathoplastic variation in symptomatology, the vast majority of the psychotic disorders postpartum are in fact atypical affective disorders. Curiously enough this opinion is defended with the evidence in hand that, compared to nonpostpartum affective disorders, there is a higher rate of confusion, psychotic symptoms and lability in mood in patients with postpartum affective disorder. It is highly probable that at the root of this opinion lies a limitless concept of affective disorders. With the present state of the art of psychiatry and in view of the fact that modern classification systems are based on descriptive differences in phenomenology, there is as yet is no justification for bending the phenomenological reality into the Kraepelinian dichotomy by reducing puerperal psychosis to atypical affective disorder.

It is clear that there remains an overlap in phenomenology between puerperal psychosis and affective disorders and this study does not rule out the possibility that puerperal psychosis may be genetically a subtype of affective disorders or that the nature of the precipitating factor (childbirth)

adds special features to the clinical picture.

However, the present state of affairs concerning specific clinical features and the well established epidemiological evidence of a causal relationship between childbirth and the onset of mental illness justifies upholding a concept of a specific puerperal psychosis and indicates that a separate status for puerperal psychosis within modern classificatory systems is required.

Even if one considers the evidence presented insufficient to accept puerperal psychosis as a separate entity, the minimal rational requirement for research purposes would be to add to the DSM and ICD systems the obligation to indicate (in addition to the code) any mental illness that developed within 3 weeks postpartum, irrespective of its classification.

The present lack of possibilities to indicate the aetiological association of childbirth with the onset of mental disorders is a major obstacle to both research and professional communication in this area. Once the national and international registration systems of mental disorders allow the possibility to trace psychoses associated with childbirth, the exact longterm course and epidemiology of the different manifestations of postpartum mental illness can be revealed.

It may also clarify the relationship of puerperal psychosis with affective disorders and shed some light on the claim first made by Perris that patients with puerperal psychosis are in fact suffering from a life time vulnerability to cycloid psychosis, with childbirth as the precipitating factor for the puerperal episode.

Confusional symptoms and depersonalization as the "core" phenomenon in postpartum mental disorder, a hypothesis

In chapter II we demonstrated that depersonalization is the most frequently occurring psychopathological symptom in postpartum mental illness, irrespective of the classification of the mental disorder. More than 70% of the patients experienced depersonalization phenomenon during the illness. The interrelation between disorientation, confusion, perplexity and depersonalization was discussed and operational definitions were given.

We indicated that it is highly probable that these psychopathological phenomena are lying on a continuum of severity, with a common (but complex) aetiological background. We also made plausible that perplexity is an extreme form (loss of reality testing) of depersonalization (reality testing intact). As these closely related symptoms are the psychopathological phenomena that the different manifestations of postpartum mental disorders have in common, we consider it probable that they are the expression of the strong "psychotogenic" factor operating in the puerperal period.

It is therefore put forward that a *pathological alteration of the capacity to attribute sense and significance to emotional, physical or tempero-spatial perceptions and experiences* is the "core" psychopathological phenomenon of postpartum mental disorder.

Severe forms of the phenomenon lead to disorientation and confusion while perplexity and depersonalization are milder expressions of the same disturbance. In 1901 Pierre Janet (2) described basically the same phenomenon in his studies on the disorders of consciousness in patients with "hysteria". He considered "the diminution of personal synthesis" (a general incapacity to integrate information) to be the central deficit in these patients.

It is my opinion that the same process leading to the appearance of confusional symptoms and depersonalization simultaneously brings out of adjustment basic biological mechanisms implicated in the genesis of affective disorders. This process triggers the cascade of events that leads to the onset of postpartum affective disorder in patients with a genetic vulnerability to bipolar disorders but may also lead to the development of a psychotic disorder dominated by confusional symptoms and its sequelae in individuals without this specific vulnerability to bipolar disorder. Thus, puerperal psychosis and affective psychoses postpartum may share a common biological pathway in the onset of psychosis without necessarily being identical.

Prognosis and course of illness.

With the exception of postpartum schizophrenia the short term outcome of adequately treated postpartum psychoses (both postpartum affective disorders and puerperal psychosis) is excellent. After treatment in hospital for an average of three months 80 - 85% of the patients are either recovered or significantly improved at discharge.

The overall long-term outcome for postpartum mental disorders is likewise favorable. After an average follow-up of 11,6 years, 97,5% of the patients are living in the community and 2,5% of the patients are living in mental hospitals. Within the present context of mental health care in the Netherlands this is strong evidence that postpartum mental illness seldom follows a severely incapacitating course.

Although we confirm the overall favorable prognosis we also demonstrated that patients with postpartum psychiatric disorder are frequently confronted with recurrences of nonpuerperal mental disorder. After an average follow-up of 10 years only 35% of the women have remained without mental health problems. One of the striking results of the follow-up study is the finding that the classification of the illness is not a very powerful predictor of the future course and outcome. Although there was a trend indicating that patients classified according to RDC under

schizophrenia tend to have the worst prognosis and patients classified under unspecified functional psychosis tend to have the best long term outcome, the predictive value of the classification was weak compared to the predictive value of the severity of the index episode (reflected by the duration of hospitalization) and the presence of a personal history of mental disorders prior to the index illness. Both a long duration of the postpartum mental disorder and psychiatric problems prior to the index illness are strong predictors of a less favorable outcome.

The risk of recurrence after subsequent pregnancy and delivery in these patients is very high (approx 40%). It illustrates the massive impact of childbirth on the mental health of these women and the potential benefits of a strategy preventing such recurrences. We concluded that the findings of this study contribute to a more realistic image of the future and provide the opportunity for both patients and doctors of a more rational evaluation of the risks involved.

Reducing the risk of recurrence in postpartum psychoses and recommendations on primary prevention.

This study presents strong evidence that lithiumcarbonate given immediately after delivery is effective in reducing the risk of recurrence of puerperal psychosis and bipolar disorder in the puerperium to approximately 13%. Without prophylactic treatment the recurrence risk is approximately 40%. This finding draws attention to the absolute necessity of taking an adequate psychiatric history in pregnant women presenting themselves to obstetricians, general practitioners and midwives. This is also stressed by the evidence indicating that for women with a personal or family history of bipolar disorder the risk of psychosis in the puerperal period increases 100 fold; from 1 to 2 in 1000 to approximately 1 in 5. These women will have to be informed about the risks involved and should be told that a strategy exists by which the risk can be reduced.

It is my opinion that women with a family history (first degree relatives) of bipolar disorder or puerperal psychosis, who have been free of psychiatric problems until their pregnancy, should be given the opportunity to enter a prophylactic-lithium program.

This policy is particularly advocated in view of the evidence presented by Post (3), indicating that recurrences of affective illness may be yielding the patient progressively more sensitive to reoccurrences of affective episodes and more refractory to treatment.

Thus it is likewise probable that by preventing the first psychotic decompensation postpartum a lifetime "carrier" of recurrent mental illness is prevented. The exceptional high risk of psychosis for a strictly limited period (the first weeks after childbirth) in a well delineated group of women, in combination with the existence of an effective strategy in reducing this risk, appears to be an

ideal situation for creating a primary prevention program. The potential benefits of a combined primary and secondary prevention program are illustrated by the results of a previous study (chapter III) in which it was reported that 75% of the patients with postpartum (affective) psychosis experience their first episode of mental illness in the puerperium while the rates for a positive personal or family history of psychiatric illness in these patients vary between 25 and 45%.

Lactation inhibition.

The inhibition of lactation with bromocryptine is the second area of particular interest for these women at high risk for postpartum mental illness. Bromocryptine is widely used in the Netherlands to inhibit lactation in women who either prefer not to breastfeed or for whom the circumstances do not allow breastfeeding. Although antidepressant effects have been reported following the administration of bromocryptine it has also been shown to provoke psychosis (dose dependent) or initiate the switch from depression into mania in patients with bipolar disorder (4). In the psychopharmacological sense bromocryptine has strong dopaminergic agonistic properties and therefore may have psychosis-inducing properties even on purely theoretical considerations.

In view of the evidence recently presented by Wieck et al (5) considering the possible increased sensitivity of dopaminergic receptors in patients developing postpartum affective psychosis the administration of bromocryptine in these high risk patients is contra-indicated.

Therefore we strongly recommend conservative means of lactation inhibition if breastfeeding is impossible in patients with either previous puerperal psychoses, a personal history of affective psychoses or a family history of bipolar disorder.

Finally, in relation to indications for delivery in hospital (specific for the Netherlands) it is important to state that for women at high risk of postpartum psychoses, a medical indication exists for a delivery in hospital with regular postpartum visits by a psychiatrist.

The prophylactic lithium program requires at least a few days of hospitalization. Patients who do not participate in this program but are at high risk for postpartum psychoses should be given the opportunity (without financial barriers) to have their baby where they feel safest, that is either at home or in hospital.

References

1. Feighner JP, Robins E, Guze SB, Woodruff RA, Winokur G, Munoz R. Diagnostic criteria for use in psychiatric research. *Archives of General Psychiatry*. 1972;26:57-63.
2. Janet P. *The mental state of hystericals*. New York, Putman 1901.
3. Post RM. Transduction of psychosocial stress into the neurobiology of recurrent affective disorder. *Am. J. Psychiatry* 1992;149:8:999-1010.
4. Jimerson. Role of dopamine mechanism in affective disorders. In: *Psychopharmacology: The third generation of progress*. H.Y.Meltzer Ed. Raven Press, New York. 1987.
5. Wieck A, Kumar R, Hirst AD, Marks MN, Campbell IC, Checkley SA. Increased sensitivity of dopamine receptors and recurrence of affective psychosis after childbirth. *British Med. J.* 1991;303:613-616.

SUMMARY.

Chapter I.

Psychiatric disorders postpartum, a historical outline.

This historical outline follows the evolution in thought of the concept of puerperal psychosis and related aetiological hypotheses. The first observation that a relationship exists between childbirth and the onset of mental disorder was made by the ancient Greeks. The notions of Hippocrates on this subject persisted for more than 2000 years before they were reshaped by the nineteenth century French psychiatrists Esquirol and Marcé.

For the past twohundred years there has been a constant debate as to whether or not puerperal psychosis should be considered a separate nosological "entity". Although this discussion resulted in the disappearance of puerperal psychosis from modern classificatory systems, there is a growing body of evidence challenging this position.

Modern epidemiological studies provide clear evidence of a causal relationship between childbirth and the onset of mental illness. Although recent research has provided some indications of the psychological and biological factors implicated in the genesis of postpartum psychiatric disorder, the major questions related to a recognizable clinical entity and "hard" aetiological relationships are still unanswered.

Chapter II.

The clinical features of postpartum psychoses, a descriptive study based on the case-histories of 250 patients.

The clinical features and symptoms of postpartum psychoses are presented in relation to the classification according to the Research Diagnostic Criteria (RDC) and the classical concept of "puerperal psychosis". A number of symptoms, i.e. confusional symptoms, depersonalization, misrecognitions and the "kaleidoscopic" picture are shown to be prominent features.

In episodes of psychosis classified according to RDC as schizoaffective disorder and unspecified functional psychosis a higher frequency of confusional symptoms, misrecognitions, thematic delusions and a "kaleidoscopic" course of illness is found compared to episodes classified as schizophrenia, mania or depression.

Special attention is paid to operational criteria and definitions of confusional symptoms (disoriënta-

tion, confusion, perplexity) and depersonalization. The interrelation of these symptoms is discussed and it is made plausible that they operate on a continuum of severity.

The findings of this study support a special status for postpartum psychosis and suggest a possible link with the concept of cycloid psychosis.

In the management of postpartum mental disorder the risk of child-directed aggression, suicide and sudden relapses into psychosis requires special attention.

Chapter III.

Patients with postpartum mental illness; obstetric and sociodemographic characteristics, psychiatric history, treatment and course of illness.

The results of this study confirm earlier investigations that a personal or family history of psychotic illness (especially bipolar disorders) is an important risk factor in postpartum psychoses. The results on the sociodemographic characteristics do not indicate that the age of the mother or the marital status constitutes a specific risk factor. Practically all women (92%) hospitalized because of psychiatric disorder postpartum were either married or stably cohabiting. This was interpreted as an indication that being single or divorced is not specifically enhancing the risk of psychosis in the puerperium. It can not be excluded however that these factors influence the incidence of (non-psychotic) postpartum depression in the population.

A second well established risk factor confirmed by this study is primiparity. The frequency of Caesarian section in these patients is not higher than the frequency in the population. Except for the subclassification unspecified functional psychosis (according to the Research Diagnostic Criteria, RDC) there is no apparent relation with obstetric complications. It was also shown that in a large majority of the patients (75%) postpartum psychiatric disorder was the first manifestation of mental illness. The results on drug treatment on the Rotterdam mother and baby-unit indicate that neuroleptics and especially the combination of lithium and neuroleptics are considered effective in the treatment of postpartum psychoses. An extensive discussion is devoted to the place of ECT in the treatment of these patients and it is concluded that there are limited but specific circumstances justifying its use in the puerperal period.

The average duration of stay in hospital was three months. At discharge 83% of the patients were in good condition and 65% of the patients were considered completely recovered.

Chapter IV.

The classification of postpartum psychoses; a study of 250 mother and baby admissions in the Netherlands.

The case registers of the patients admitted consecutively to the mother-and-baby unit of the Rotterdam University Hospital between 1967 and 1989 were studied in detail and classified according to the Research Diagnostic Criteria (RDC). The temporal relationship between delivery and the onset of symptoms for the different RDC categories is presented. A comparison is made between the classification according to RDC and the classical concept of puerperal psychosis as it is held in the Netherlands. According to RDC postpartum psychosis has 3 main phenomenological manifestations: affective, schizoaffective and unspecified functional psychosis. The classical concept of puerperal psychosis largely overlaps the RDC categories schizoaffective disorder and unspecified functional psychosis. It is concluded that the concept of puerperal psychosis is functional as it appears to fill a nosological gap between schizophrenia and affective disorders that is particularly apparent in psychotic disorders associated with childbirth. The implications regarding the nosology of postpartum psychoses are discussed. A separate status for postpartum psychoses within modern classificatory systems is advocated.

Chapter V.

Prognosis and long-term course in postpartum psychoses; a follow-up study (1967 - 1989).

In a follow-up study varying from 2 - 22 years it was established that the case fatality rate in the group of patients admitted to the Rotterdam mother and baby unit was 1,3%. The suicide rate in the aftermath of postpartum mental disorder was 1,13 per thousand person years. This risk is approximately 20 fold increased compared to the risk for the population at large. Overall, prognosis for postpartum mental disorder is favourable. This is illustrated by the fact that after an average follow-up of 11 years 97,5% of the patients are still living in the community and 2,5% of the patients are living in mental hospitals. However these results do not imply that patients with postpartum psychiatric disorder will never be confronted with mental illness again. We established that after an average follow-up of 10,3 years the majority of the patients (57%) will, at least once, have called in the help of a General Practitioner or Mental Health Institution because of psychiatric problems (rate per thousand person years = 56). In a large majority of these patients the recurrences of mental illness were nonpuerperal. The mental health problems occurring in the

aftermath of the index illness were serious to such a degree that an episode of hospitalization was considered necessary in 40% of the patients (Rate/1000 p.y. = 39,3). The massive impact of childbirth on the mental health of these women is illustrated by a recurrence risk of 41% after subsequent pregnancy and delivery. Strong predictors of the longterm outcome are the presence or absence of psychiatric illness prior to the puerperal episode and the duration of hospitalization because of the index illness. The predictive value of the RDC classification is limited.

Chapter VI.

Prophylactic lithium in women at high risk for postpartum psychoses.

The development of an adequate strategy in preventing the recurrence of puerperal psychosis in patients at high risk for such a recurrence was the aim of this study.

The figures in the literature on the subject of recurrence risks of postpartum psychoses vary between 20 and 50% depending on the risk factor studied. A personal history of (bipolar) mental illness, a family history of psychiatric illness (especially affective disorder) and a previous episode of postpartum psychosis are such risk factors. The recurrence rate of 41% we recently reported in a follow-up study of patients treated in Rotterdam because of postpartum psychosis illustrates this risk. In this study we present the case vignettes of the first (six) patients and the results in sixteen patients given prophylactic lithium after eighteen pregnancies. The prophylactic lithiumcarbonate treatment was well tolerated and in general patients expressed great satisfaction with the program, for it was the first time most of them could happily enjoy the puerperium. We report a recurrence rate of 11% (2 recurrences in 18 cases) in patients prophylactically treated with lithiumcarbonate in Rotterdam, and a recurrence rate of 13% if the results of an international "three centres study" to which we contributed are taken into account. This recurrence risk falls well below the risk of recurrence if only a single risk factor existed. The results of this study strengthen the evidence that lithiumcarbonate given immediately after delivery is effective in reducing the risk of recurrence of postpartum psychoses and bipolar disorder in the puerperium.

Chapter VII.

Puerperal psychosis; a study based on the phenomenology of patients with two consecutive postpartum psychotic episodes.

This study is based on the assumption that if there is a recognizable puerperal psychosis with

specific clinical features, these features should be distinguishable in patients with two consecutive episodes of psychotic illness postpartum. The clinical features and classification of 20 episodes of puerperal psychosis in 10 patients are focused upon in this study. In patients with two consecutive episodes of postpartum psychosis 95% of the episodes do not fulfill the strict RDC criteria for affective disorder or schizophrenia. Moreover, in a considerable percentage of the patients (30%) the RDC classification of the first and second episode of puerperal psychosis is not identical. Two clinical features i.e., an onset of psychosis within three weeks postpartum and the presence of confusional symptoms, appear to be highly specific characteristics of these episodes. If one accepts the hypothesis that patients with two consecutive episodes of postpartum psychosis are expressing the symptomatology of "puerperal psychosis" it can be concluded that both these criteria should be met for a classification of "puerperal psychosis" to be considered. Application of these specific clinical features as selection criteria to the symptomchecklist of all patients with a psychotic disorder postpartum will reveal if they are useful in identifying phenomenologically different groups.

Chapter VIII.

Puerperal psychosis; the identification of a separate psychopathological syndrome in postpartum psychoses.

In this study the selection criteria derived from patients with two consecutive episodes of psychosis postpartum i.e. the presence of confusional symptoms and an onset of psychosis within 21 days postpartum, are applied to the whole sample. Concerning the classification of the episodes of psychosis the results virtually respect the boundaries of strictly defined schizophrenia and affective disorders and a "puerperal psychosis" is identified that largely overlaps the RDC classification schizoaffective disorder and unspecified functional psychosis.

Discriminating clinical features associated with the two selection criteria and found in significantly higher frequencies in "puerperal psychosis" are depersonalization, misrecognitions, thematic delusions, a kaleidoscopic picture, stupor and mutism, and hallucinations.

In this study strong evidence is put forward that "puerperal psychosis" can be distinguished from schizophrenia and affective disorders on the basis of its clinical features. These findings result in a more clearly delineated picture of the classical concept of puerperal psychosis as it was depicted more than 100 years ago (1875) by Furstner and elaborated and advocated by Hamilton (1962).

Chapter IX.

Concluding remarks and recommendations.

In this chapter the results of the previous studies are outlined and defined criteria are presented by which to classify a "puerperal psychosis". The boundaries with affective disorders are discussed and it is concluded that next to puerperal psychosis an important part of the mental disorders postpartum are in fact affective disorders with childbirth as the precipitating factor for this particular episode. It is also put forward that the present state of affairs indicating specific clinical features for puerperal psychosis combined with the well established epidemiological evidence of a causal relationship between childbirth and the onset of mental illness justifies upholding a concept of puerperal psychosis and indicates that a separate status for puerperal psychosis within modern classificatory systems is required.

The hypothesis is put forward that the core psychopathological phenomenon of postpartum mental disorder is a pathological alteration of the capacity to attribute sense and significance to emotional, physical or tempero-spatial perceptions and experiences. The clinical manifestations of this disturbance are confusional symptoms and depersonalization.

In relation to the risk of recurrence in postpartum psychoses and the prophylactic lithium program advocated in these patients recommendations are made to create both a primary and secondary prevention program.

Finally, in view of the probable psychogenic properties of bromocryptine (widely used to inhibit lactation) we recommend conservative means of lactation inhibition if breastfeeding is impossible in patients with either a previous puerperal psychosis, a personal history of affective psychosis or a family history of bipolar disorder.

SAMENVATTING.

Hoofdstuk I.

Psychiatrische stoornissen postpartum, een historische schets.

Dit historisch overzicht schetst de evolutie in het denken over het concept van de puerperaal psychose en de ermee samenhangende etiologische hypothesen. De eerste beschrijving van de relatie tussen het krijgen van een kind en het ontstaan van geestesziekten dateert uit de Griekse Oudheid. De gedachten van Hyppocrates over dit onderwerp bleven meer dan 2000 jaar onveranderd bestaan totdat de negentiende eeuwse Franse psychiaters Esquirol en Marcé er een nieuwe vorm aan gaven.

De afgelopen 200 jaar is er vrijwel voortdurend gedebatteerd over de vraag of de kraambedpsychose al dan niet kon worden gezien als een separate nosologische "entiteit". Hoewel deze discussie uiteindelijk tot resultaat heeft gehad dat de kraambedpsychose is verdwenen uit alle moderne classificatiesystemen, komen er steeds meer aanwijzingen en bewijzen die aanleiding zijn deze stand van zaken ter discussie te stellen. Met name moderne epidemiologische studies tonen duidelijk aan dat er een oorzakelijk verband bestaat tussen het krijgen van een kind en het ontstaan van psychiatrische stoornissen.

Hoewel recent onderzoek zeker aanwijzingen heeft opgeleverd welke psychologische en biologische factoren betrokken zijn bij het ontstaan van psychiatrische stoornissen in het kraambed, zijn de belangrijkste vragen aangaande "harde" etiologische relaties en het bestaan van een herkenbare, specifieke klinische "entiteit" onbeantwoord gebleven.

Hoofdstuk II.

De klinische verschijnselen van postpartum psychosen, een descriptieve studie gebaseerd op de gevalsbeschrijvingen van 250 patiënten.

De klinische verschijnselen en symptomen van de postpartum psychosen worden gepresenteerd in relatie tot de classificatie volgens de Research Diagnostic Criteria (RDC) en in relatie tot het concept van de klassieke kraambedpsychose. Van een aantal symptomen, d.w.z. bewustzijnsstoornissen (confusional symptoms), depersonalisatie, persoonsmiskenningen en het kaleidoscopisch beeld wordt aangetoond dat ze prominente verschijnselen zijn bij deze psychosen.

Bij psychosen die na toepassing van de RDC geclassificeerd worden als schizo-affectieve stoornis

en unspecified functional psychosis komen symptomen als bewustzijnsstoornissen (confusional symptoms), persoonsmiskeningen, thematische wanen en het kaleidoscopisch beeld significant vaker voor dan bij psychosen die worden geclassificeerd als schizofrenie, manie of depressie. Deze bevindingen ondersteunen de claim dat een speciale status voor postpartum psychosen gerechtvaardigd is en suggereren dat er mogelijk een verband bestaat met het concept van de cycloïde psychose.

Bij het vaststellen van het behandelbeleid ten aanzien van psychiatrische stoornissen in het kraambed dient terdege rekening te worden gehouden met de mogelijkheid van gerichte agressie naar het kind, suïcidale intenties en plotseling optredende terugvallen in psychotisch handelen en denken.

Hoofdstuk III.

Patiënten met postpartum psychiatrische stoornissen; obstetrische en sociodemografische karakteristieken, psychiatrische voorgeschiedenis, behandeling en beloop.

De resultaten van dit onderzoek bevestigen het gegeven dat een eerdere psychose of een familiale belasting met psychosen (met name bipolaire stoornissen) een belangrijke risicofactor vormen voor het ontwikkelen van postpartum psychosen. Voor wat betreft de sociodemografische karakteristieken wijzen de resultaten erop dat noch de leeftijd van de moeder noch ongehuwd moederschap een specifieke risicofactor zijn.

Vrijwel alle vrouwen (92%) die werden opgenomen vanwege psychiatrische stoornissen in het kraambed waren getrouwd of hadden een stabiel samenlevingsverband. Dit werd geïnterpreteerd als een aanwijzing dat alleenstaand moederschap of gescheiden zijn niet specifiek het risico op psychosen in het puerperium verhogen.

Dit onderzoek bevestigt het reeds goed onderbouwde epidemiologische gegeven dat het krijgen van een eerste kind een specifieke risicofactor is voor het ontwikkelen van psychiatrische stoornissen in het kraambed. Voor wat betreft de obstetrische factoren blijkt de keizersnede in deze groep patiënten niet vaker voor te komen dan in de rest van de populatie. Met uitzondering van de subclassificatie unspecified functional psychoses (volgens de RDC) lijkt er geen relatie te bestaan met het optreden van obstetrische complicaties. Tevens wordt aangetoond dat een meerderheid van de patiënten in dit onderzoek (75%) in het kraambed voor het eerst psychiatrische verschijnselen ontwikkelde. Het overzicht van de medicamenteuze behandeling op de afdeling voor moeder en kind in Rotterdam laat zien dat neuroleptica en de combinatie van

neuroleptica en lithium frequent worden voorgeschreven en beschouwd worden als een effectieve behandeling van postpartum psychosen.

Een uitgebreide discussie wordt gewijd aan de plaats van ECT in de behandeling van deze patiënten met als conclusie dat er een beperkt aantal specifieke indicaties bestaat die het gebruik van ECT in de puerperaal periode rechtvaardigen. Het gemiddelde verblijf in het ziekenhuis was 3 maanden.

Bij ontslag is 83% van de patiënten in goede conditie, terwijl 65% van de patiënten zelfs volledig hersteld is.

Hoofdstuk IV.

De classificatie van postpartum psychosen; een onderzoek naar 250 opnames van moeder en kind in Nederland.

De dossiers van alle patiënten die tussen 1967 en 1989 werden opgenomen op de afdeling voor moeder en kind van het Academisch Ziekenhuis Rotterdam Dijkzigt zijn in detail bestudeerd en geclassificeerd volgens de Research Diagnostic Criteria (RDC). Het tijdsverloop tussen de bevalling en de aanvang van de eerste psychotische symptomen voor de verschillende RDC-categorieën wordt in deze studie weergegeven. Er wordt een vergelijking gemaakt tussen de RDC classificatie en de classificatie volgens het klassieke concept van de puerperaal psychose, zoals dat in Nederland wordt gehanteerd. Toepassing van de Research Diagnostic Criteria laat zien dat volgens dit classificatiesysteem de postpartum psychosen drie belangrijke fenomenologische verschijningsvormen heeft: nl. affectief, schizoaffectief en unspecified functional psychosis. Het klassieke concept van de puerperaal psychose overlapt grotendeels de RDC categorieën schizoaffectieve stoornis en unspecified functional psychosis. Er wordt geconcludeerd dat het concept van de puerperaal psychose in ieder geval functioneel is, daar het de nosologische leemte vult tussen schizofrenie en affectieve stoornissen, die bijzonder opvalt bij psychotische stoornissen in het kraambed. De implicaties van deze bevindingen voor de nosologie van de postpartum psychosen worden bediscussieerd. Een aparte status voor de postpartum psychosen binnen de moderne classificatiesystemen wordt bepleit.

Hoofdstuk V.

Prognose en lange termijn beloop van postpartum psychosen; een follow-up studie (1967 - 1989).

Dit onderzoek is een follow-up studie waarbij 2 tot 22 jaar na de initiële opname naar het beloop werd geïnformeerd bij de huisarts. Allereerst wordt vastgesteld dat het mortaliteitscijfer in de groep patiënten opgenomen op de afdeling voor moeder en kind in Rotterdam 1,3% was. In de jaren volgend op de opname vanwege een psychiatrische stoornis in het kraambed is het suïcidecijfer 1,13 per duizend persoon jaren. Het suïciderisico is ongeveer 20 keer zo hoog als in de populatie vrouwen onder de 65 jaar (C.B.S.). Over het algemeen is de prognose van psychiatrische stoornissen in het kraambed gunstig. Dit wordt geïllustreerd door het gegeven dat na een gemiddelde follow-up van 11 jaar 97,5% van de patiënten in de gemeenschap leven en 2,5% van de patiënten blijvend is opgenomen in een psychiatrisch ziekenhuis. Echter, deze resultaten impliceren niet dat patiënten met een psychiatrische stoornis postpartum verder vrij zullen blijven van psychiatrische problemen. Er werd vastgesteld dat na een gemiddelde follow-up van 10,3 jaar een belangrijk deel van de patiënten (57%) tenminste eenmaal de hulp van huisarts of RIAGG heeft ingeroepen vanwege psychiatrische stoornissen. (Frequentie per duizend persoon jaren = 56). Bij een meerderheid van deze patiënten bestaat er bij de recidieven van de psychiatrische stoornis geen relatie met het kraambed. De psychiatrische stoornissen die optreden in de jaren na de initiële opname waren zodanig ernstig dat in totaal 40% van de patiënten opnieuw psychiatrisch werd opgenomen. (Frequentie per duizend persoon jaren = 39,3). De enorme impact van het kraambed op de psychiatrische toestand van deze vrouwen wordt geïllustreerd door een herhalingsrisico van 41% na een volgende zwangerschap en bevalling. Voor wat betreft het beloop op lange termijn bleken 2 factoren een grote voorspellende waarde te hebben: het al dan niet hebben doorgemaakt van een psychotische stoornis voorafgaande aan de puerperale episode én de tijd die noodzakelijk blijkt voor een adequate behandeling (opnameduur).

Hoofdstuk VI.

Het profylactisch instellen op Lithium bij vrouwen met een hoog risico op een postpartum psychose.

Doel van dit onderzoek is het ontwikkelen van een adequate strategie om recidieven van de kraambedpsychose te voorkomen bij patiënten die een hoog risico lopen op zo'n recidief.

Met betrekking tot het herhalingsrisico van postpartum psychosen variëren de cijfers in de literatuur tussen de 20 en 50%, afhankelijk van welke risicofactor wordt bestudeerd. Risicofactoren zijn het eerder hebben doorgemaakt van een psychiatrische stoornis (met name bipolaire stoornissen), een familiale belasting met psychiatrische stoornissen (met name affectieve stoornissen) en een eerdere kraambedpsychose. De zeer hoge recidiefrequentie (41%) die bij het follow-up onderzoek werd gevonden is hiervan een illustratie. De gevalsbeschrijvingen van de eerste zes patiënten en de resultaten van het profylactische lithiumprogramma dat 18 keer werd toegepast bij 16 vrouwen, komen in deze studie aan de orde. De profylactische behandeling met lithium werd goed verdragen en over het algemeen waren de patiënten zeer tevreden met het programma, daar het voor de meeste van hen de eerste keer was dat ze een gelukkige kraamtijd doormaakten. Bij de patiënten die profylactisch werden behandeld met lithium vonden wij een recidiefpercentage van 11% (2 van de 18). Wanneer de resultaten van de internationale "three centres study" erbij worden betrokken is het recidiefpercentage onder lithiumprofyaxe 13%. Dit recidiefpercentage ligt aanzienlijk lager dan het herhalingsrisico wanneer slechts een van de eerder genoemde risicofactoren aanwezig is. Bij vrijwel alle patiënten zijn echter meerdere risicofactoren aanwezig. De resultaten van dit onderzoek bevestigen dat het profylactisch geven van lithiumcarbonaat onmiddellijk na de bevalling een effectieve wijze is om het herhalingsrisico op een postpartum psychose of een bipolaire stoornis in het kraambed te verminderen.

Hoofdstuk VII.

De kraambedpsychose; een studie gebaseerd op de fenomenologie van patiënten met twee opeenvolgende episoden van psychose in het kraambed.

Deze studie is gebaseerd op de aanname dat, als er al een herkenbare kraambedpsychose met specifieke klinische verschijnselen bestaat, deze klinische verschijnselen te vinden zouden moeten zijn bij patiënten met twee opeenvolgende postpartum psychosen. Onderwerp van dit onderzoek zijn dan ook de klinische verschijnselen van 20 verschillende episoden van postpartum psychosen ontleend aan 10 patiënten. Bij patiënten met twee opeenvolgende postpartum psychosen blijkt 95% van de episoden niet te voldoen aan de strikte R.D.C. criteria voor affectieve stoornissen of schizofrenie. Bovendien blijkt bij een aanzienlijk percentage van de patiënten de R.D.C. classificatie van de eerste- en de tweede episode niet identiek te zijn. Er worden twee klinische verschijnselen gevonden die zeer specifiek zijn voor de episoden van patiënten met twee opeenvolgende kraambedpsychosen. Deze verschijnselen zijn het ontstaan van de psychose binnen

3 weken na de bevalling en de aanwezigheid van bewustzijnsstoornissen (confusional symptoms). Indien men de hypothese accepteert dat de specifieke symptomatologie van de kraambedpsychose, als deze bestaat, te vinden moet zijn bij patiënten die twee opeenvolgende episoden van psychose in het kraambed hebben doorgemaakt, dan kan worden geconcludeerd dat tenminste aan beide bovengenoemde criteria moet worden voldaan voordat een classificatie als "kraambedpsychose" kan worden overwogen. Door deze specifieke klinische verschijnselen te gebruiken als selectiecriteria en ze als zodanig toe te passen op de "symptom checklist" van alle patiënten met een psychotische stoornis postpartum, kan worden nagegaan of deze criteria ertoe leiden dat twee fenomenologisch verschillende groepen worden geïdentificeerd.

Hoofdstuk VIII.

De kraambedpsychose. De identificatie van een te onderscheiden psychopathologisch syndroom binnen de postpartum psychosen.

In dit onderzoek worden de selectiecriteria, die zijn ontleend aan patiënten met twee opeenvolgende episoden van postpartum psychose, d.w.z. de aanwezigheid van bewustzijnsstoornissen (confusional symptoms) en het ontstaan van de eerste psychotische verschijnselen binnen 21 dagen postpartum, toegepast op de gehele groep. De door middel van deze procedure geïdentificeerde "kraambedpsychose" overlapt grotendeels de R.D.C. classificaties, schizoaffectieve stoornis en unspecified functional psychoses. De algemeen geaccepteerde grenzen van strikt gedefinieerde schizofrenie en affectieve stoornissen blijven ook na toepassing van deze selectiecriteria gerespecteerd. Behalve deze verschillen in classificatie, komen er bij patiënten die aan beide selectiecriteria voldoen, d.w.z. patiënten met een "kraambedpsychose" een aantal andere symptomen significant vaker voor. Deze symptomen zijn depersonalisatie, persoonsmiskeningen, thematische wanen, het kaleidoscopisch beeld, stupor en mutisme en hallucinaties.

In dit onderzoek worden sterke argumenten aangedragen die bevestigen dat de "kraambedpsychose" op grond van zijn klinische verschijnselen kan worden onderscheiden van schizofrenie en affectieve stoornissen. De resultaten leiden uiteindelijk tot een scherpere begrenzing van het klassieke concept van de kraambedpsychose, zoals het meer dan 100 jaar geleden werd beschreven door Fürstner (1875) en werd bewerkt door Hamilton (1962).

HOOFDSTUK IX.

Conclusies en aanbevelingen.

In dit hoofdstuk worden de resultaten van de eerdere onderzoeken op een rij gezet en worden criteria genoemd waaraan de classificatie "kraambedpsychose" moet voldoen. De grenzen van het concept kraambedpsychose met de affectieve stoornissen worden besproken. Hieruit komt naar voren dat naast de kraambedpsychose tevens een belangrijk deel van de psychiatrische stoornissen postpartum affectieve stoornissen zijn met het kraambed als de precipiterende factor voor deze specifieke episode. Tevens wordt naar voren gebracht dat de aanwezigheid van specifieke klinische verschijnselen op grond waarvan de kraambedpsychose te onderscheiden is, gecombineerd met het goed onderbouwde epidemiologische bewijs van een oorzakelijke relatie tussen het kraambed en het ontstaan van psychiatrische stoornissen, het rechtvaardigt te werken met een concept van de "kraambedpsychose".

Er wordt dan ook geconcludeerd dat een aparte plaats voor de kraambedpsychose binnen moderne classificatiesystemen een vereiste is.

De hypothese wordt naar voren gebracht dat het basis-psychopathologische fenomeen van de postpartum psychosen een pathologische verandering is van het vermogen om betekenis te verlenen aan emotionele, lichamelijke of temporo-spatiale percepties en ervaringen. De klinische manifestatie van deze stoornis zijn bewustzijnsstoornissen en depersonalisatie.

In relatie tot het hoge herhalingsrisico en de effectiviteit van de profylactische lithium behandeling worden aanbevelingen gedaan om een primair en secundair preventieprogramma te creëren. Tot slot wordt aanbevolen om, vanwege de mogelijke psychose-inducerende eigenschappen van bromocriptine, conservatieve methoden van lactatieremming te gebruiken indien borstvoeding onmogelijk is bij patiënten met een eerdere kraambedpsychose, een voorgeschiedenis van affectieve stoornissen of een familiale belasting met bipolaire stoornissen.

CURRICULUM VITAE.

De auteur van dit proefschrift werd op 22 februari 1953 in Den Haag geboren. Hij doorliep de rijks-HBS te Breda, waar hij in 1972 het HBS-B diploma behaalde. Na het vervullen van zijn militaire dienstplicht begon hij in 1974 de studie geneeskunde aan de Erasmus Universiteit te Rotterdam. In 1981 behaalde hij er het artsexamen. Voorafgaande aan de opleiding tot psychiater was hij als arts-assistent werkzaam op afdelingen chirurgie en interne geneeskunde en doorliep de huisartsenopleiding te Rotterdam. Op 1 januari 1983 begon hij de opleiding tot psychiater op de afdeling psychiatrie van het Academisch Ziekenhuis Rotterdam-Dijkzigt. Aldaar was de eerste periode Prof. Dr. G.A. Ladee en in een later stadium Prof. Dr. W.J. Schudel opleider.

Het keuzejaar bestond uit een combinatie van een biologisch-psychiatrische research stage aan de Erasmus Universiteit te Rotterdam (supervisor Prof. Dr. L. Peppinkhuizen) en een stage geronto-psychiatrie in het Delta Ziekenhuis te Poortugaal (supervisor Dr. M.H. Cohen Stuart). Op 1 januari 1987 werd hij in het specialistenregister als psychiater ingeschreven.

Van 1987 tot 1990 was hij als universitair docent verbonden aan de vakgroep psychiatrie en de werkgroep pathofysiologie van gedrag van de Erasmus Universiteit Rotterdam. Gedurende deze periode was hij als psychiater werkzaam op een opname-afdeling van het Academisch Ziekenhuis Rotterdam-Dijkzigt en legde aldaar de basis voor dit proefschrift. Vanaf 1990 is hij werkzaam binnen het Vincent van Gogh Instituut te Venray, een groot algemeen psychiatrisch ziekenhuis, waar hij leiding geeft aan de polikliniek en deeltijdbehandeling. Daarnaast is hij binnen dit instituut gedurende twee jaar als psychiater werkzaam geweest op een gesloten opname- en vervolgfafdeling en sinds een jaar op een afdeling klinische gedragstherapie. Tevens is hij plaatsvervangend A-opleider.

LIST OF PUBLICATIONS.

1. Klompenhouwer JL, Hulst AM van, Boer JE de: Psychische stoornissen na de bevalling. *Maandbl. Geest. Volksgezondh.* 1988/3: 269 - 283.
2. Broek WW vd, Hulst AM van, Klompenhouwer JL, Moleman P: Blijvende neurologische schade bij therapeutische lithium-plasmaconcentraties. *Ned. Tijdschr. Geneesk.* 1988: 132: 2063 - 2066.
3. Klompenhouwer JL, Stricker BHCh, Tilburg AJP van, Moleman P, Pepplinkhuizen L: Psychiatrische complicaties bij de behandeling van overgewicht met Fenfluramine. *Ned. Tijdschr. Geneesk.* 1988: 132: 2114 - 2117.
4. Klompenhouwer JL, Hulst AM van: Psychische stoornissen na de bevalling. Antwoord naar aanleiding van commentaar op het preventiebeleid. *Maandbl. Geest. Volksgezondh.* 1988/10: 1124 - 1126.
5. Hulst AM van, Klompenhouwer JL (1989). The role of prophylactic lithium in prevention of recurrence of puerperal psychosis. In: *The Proceedings of the 9th International congress of Psychosomatic Obstetrics and Gynaecology: The Free Woman: Women's Health in the 1990's.* (eds. E.V. Van Hall, W. Everaerd) Carnforth, Lancs. U.K.: The Parthenon Publishing Group Limited, 417 - 423.
6. Klompenhouwer JL (1990). Postpartum Depressies. In: *Psychopathologie in het kraambed.* W.M.A. Verhoeven ed. pp. 27 - 39. ISBN 90-73579-02-3.
7. Klompenhouwer JL (1990). Puerperaal of kraambedpsychosen. In: *Psychopathologie in het kraambed.* W.M.A. Verhoeven ed. pp. 41 - 51. ISBN 90-73579-02-3.
8. Hulst AM van, Klompenhouwer JL (1990). Preventie van recidief postpartum psychosen. In: *Psychopathologie in het kraambed.* W.M.A. Verhoeven ed. pp. 53 - 63. ISBN: 90-73579-02-3.

9. Klompenhouwer JL, Fekkes D, Hulst van AM, Moleman P, Peplinkhuizen L, Mulder PGH (1990). Seasonal variations in binding of 3H-Paroxetine to blood Platelets in Healthy volunteers: Indications for a gender difference. *Biological Psychiatry* 1990; 28: 509 - 517.
10. Stewart DE, Klompenhouwer JL, Kendell RE and Hulst AM van. Prophylactic lithium in puerperal psychosis - 3 centres' experience. *British Journal of Psychiatry*. 1991; 158: 393 - 397.
11. Klompenhouwer JL, Hulst AM van (1991). The classification of postpartum psychosis: a study of 250 mother and baby admissions in The Netherlands. *Acta Psychiat. Scand.* 1991; 84: 225 - 261.
12. Klompenhouwer JL, Hulst AM van, Tulen JHM, Jacobs ML, Jacobs BC and Segers F. The symptomatology of postpartum psychoses; a descriptive study based on the case-histories of 250 patients. In press.
13. Klompenhouwer JL, Schudel WJ, Mulder PGH. Prognosis and long-term course in postpartum psychoses; A follow-up study (1967 - 1989). Submitted.
14. Klompenhouwer JL, Hulst AM van, Mast RC van der and Lotgering FK. Prophylactic lithium in women at high risk for postpartum psychoses. Submitted.
15. Klompenhouwer JL. Patients with postpartum mental illness. Obstetric and sociodemographic characteristics, psychiatric history, treatment and course of illness. In preparation.
16. Klompenhouwer JL. Puerperal Psychosis; a study based on the phenomenology of patients with two consecutive postpartum psychotic episodes. In preparation.
17. Klompenhouwer JL. Puerperal Psychosis; the identification of a separate psychopathological syndrome in postpartum psychoses. In preparation.

ADDENDUM

symptom-checklist.

1. Disorientation and/or confusion
2. Perplexity
3. Depersonalization
4. Agression; physical acting out
5. Agression towards the child
(both verbal and acting out)
6. Agression; all forms
7. Suicidal ideation
8. Tentamen suicidii
9. Auditive hallucinations
10. Optic hallucinations
11. Misrecognitions
12. Mania (Euphoric mood)
13. Depression (Depressive mood)
14. Formal thought disorder
15. Persecutory delusions
16. Delusions of grandeur
17. Nihilistic delusions
18. Thematic delusions: concerning mothering,
pregnancy, delivery, the child.
19. Retardation
20. Stupor and mutism
21. Agitated behavior and speech
22. Number of relapses (one or more)
23. Kaleidoscopic picture