

Post-partum Mental Disorders in an Unselected Sample: Frequency of Symptoms and Predisposing Factors

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The aim of the present study was to explore the relation between childbirth and mental disorder. Particular attention was paid to the frequency of pre-pregnancy and post-partum psychiatric symptoms, and possible prognostic and predisposing factors, as aids in predicting the course of such symptoms.

From clinical experience we know that psychoses and neuroses may begin during pregnancy, delivery, and the puerperium. Earlier studies of mental illness following parturition were mainly concerned with psychoses—that is, confusional states, schizophrenia, and massive affective disorders. So far there have been few investigations into mild mental illness—that is, neuroses, asthenic reactions, and mild affective disorders (Hamilton, 1962 ; Jansson, 1963). Most of those studies have been carried out on patients treated in a mental hospital after delivery, which implies a bias or at least a selection of the most serious cases.

The stress involved in pregnancy, delivery, and the puerperium provides a good opportunity of investigating the process of psychological adaptation and for exploring the predisposing factors of importance in mental disorders.

Further prospective studies of this subject are planned. We intend to follow up a number of women from the start of pregnancy and onwards as regards some psychological and physiological variables. The present investigation was designed as a retrospective pilot study intended to provide some preliminary data to facilitate the planning of a broader inquiry.

Method

At the Department of Gynaecology and Obstetrics in Lund a representative selection of delivered women was made, to whom a 49-item questionnaire was sent. The questionnaire was designed to explore mental symptoms during the 12 months preceding pregnancy, during pregnancy, and post partum. The chief stress was laid upon post-partum mental symptoms. The questionnaire also included items on genital involution, lactation, and sexual adaptation. (The questionnaire is partly reproduced in Appendix I.)

Most of the items required simple alternative answers (yes or no), some had several fixed alternatives, and a few were "open questions." Great care was taken in wording the items, as it is known that easy understanding has a great influence on the subjects' readiness to reply.

We chose to explore four groups of women delivered 3, 6, 9, and 12 months before the date of examination, in order to ascertain the possible course of events and a point of time when the risk of falling ill increased. With regard to the psychiatric items the subjects were requested to record their condition during the three months previous to the date of investigation in relation to their condition during the year preceding the last pregnancy.

We have observed that three types of mental syndrome seem to be fairly common post partum—namely, asthenic reaction

types, "vegetative" reaction types, and affective disorders—that is, depression of various degrees. As a consequence of this we concentrated on these states (see Appendix I—"asthenic pictures," items 12-17 and 19-21 ; "vegetative pictures," items 23-83 ; "affective pictures," items 36-40).

In connexion with the sampling a number of background variables were obtained from the records of the maternity hospital. These variables are presented in Appendix II.

Material

The material consisted of 467 women. Patients with dead children and twins were excluded, as they were considered to belong to a loaded group. The primary and secondary losses are accounted for in Table I. A total of 430 questionnaires were sent out ; three subjects could not be found by the post. We received 404 answers—an answering percentage of 94. This comprised our final material. The internal loss—that is, unanswered items—was extremely small.

TABLE I

| | |
|--|-----------|
| Total No. of women | 467 |
| Primary loss (twins, dead children, records not found) | 37 |
| No. of questionnaires sent | 430 |
| Secondary losses : | |
| Subject not found by post | 3 |
| Unanswered questionnaires | 23 |
| Final No. of women | 404 (94%) |

Results

The data obtained from the questionnaires, along with the background variables, were transferred to punch-cards and were in part treated mechanically. Table II shows the distribution of subjects among the examination groups, parity, and age. The mean values of age and parity do not differ from those of delivered women in general.

TABLE II.—Distribution of Subjects

| Examination groups (time of "observation" from delivery) | Months | | | | | | | | | |
|--|-----------|--------------|--------------|-------------|-------------|----------|--------|--------|--------|---------|
| | 3 | 6 | 9 | 12 | | | | | | |
| No. of subjects | 103 | 99 | 115 | 87 | | | | | | |
| Age in years | | | | | | | | | | |
| No. of subjects | <20 29 | 20-24 118 | 25-29 138 | 30-34 76 | 35-39 35 | 40+ 8 | | | | |
| Parity | | | | | | | | | | |
| No. of subjects | 1 172 | 2 128 | 3 69 | 4 17 | 5 13 | 6 2 | 7 0 | 8 2 | 9 0 | >9 1 |

The numbers of positive answers to each of the psychiatric items are given in Table III. Such fairly serious symptoms as anxiety and some depressive symptoms have a frequency of more than 25%.

In Fig. 1 the numbers of mental symptoms are shown as percentages of the 404 replies. About 25% of these subjects had seven or more symptoms, 20% had four to six, while the remainder, about 55%, had none or only a few.

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The numbers of psychiatric symptoms were correlated with the background data obtained from the hospital records and with

TABLE III.—*Distribution of Psychiatric Symptoms During the Three Months Preceding the Examination Compared with the Condition During the Year Before Pregnancy*

| Symptoms | No. | % |
|---------------------------------------|-----|------|
| Fatigue | 118 | 29.2 |
| Increased need for sleep | 163 | 40.4 |
| Difficulty in falling asleep | 62 | 15.4 |
| Increased fatigability | 179 | 44.4 |
| Irritability | 148 | 36.6 |
| Sensitivity to sounds | 94 | 23.3 |
| Feeling of unreality | 28 | 7.0 |
| Feeling of "being in a mist" | 44 | 10.9 |
| Need for extra help at home | 51 | 12.7 |
| Difficulty in relaxing | 129 | 31.9 |
| Anxiety | 105 | 26.1 |
| Tachycardia | 33 | 8.2 |
| Feeling of dyspnoea | 35 | 8.7 |
| Increased perspiration | 59 | 14.6 |
| Headache | 89 | 22.0 |
| Globus hystericus | 38 | 9.4 |
| Dizziness | 99 | 24.5 |
| Attacks of fear | 34 | 8.5 |
| Fear of being alone | 66 | 16.4 |
| Fear of hurting the child | 28 | 7.0 |
| Difficulty in starting the day's work | 97 | 24.1 |
| Feeling of inferiority | 45 | 11.1 |
| Pessimism regarding the future | 29 | 7.2 |
| Feeling of depression | 87 | 21.6 |
| Depression worse in the mornings | 46 | 11.4 |

the gynaecological items of the questionnaire. The findings are given in Tables IV and V. We found no significant correlation regarding age, civil state, duration of marriage, social status, parity, toxæmia, the course of delivery and puerperium during the in-patient period; nor was there any significant correlation to the duration of stay in hospital after delivery.

TABLE IV.—*Correlation Between Number of Psychiatric Symptoms and Background Variables*

| Variable | χ^2 | D.F. | P |
|---|----------|------|----------|
| Age | 10.0 | 12 | N.S. |
| Civil state and duration of marriage | 13.56 | 12 | N.S. |
| Social status | 9.8 | 6 | N.S. |
| Parity | 6.23 | 4 | N.S. |
| Earlier spontaneous abortion | 19.74 | 3 | < 0.0005 |
| Toxaemia | 5.4 | 3 | N.S. |
| Complications of delivery | 1.66 | 4 | N.S. |
| Complications of puerperium during stay in hospital | 0.4 | 1 | N.S. |
| Duration of stay in hospital | 0.2 | 4 | N.S. |

On the other hand, women with earlier spontaneous abortions (spontaneous so far as we know) had significantly more psychiatric symptoms than the rest.

Table V shows the correlation between the number of psychiatric symptoms and the gynaecological variables. Here we consistently find positive correlations which are significant. The length of breast-feeding and lactation trouble, however, do not show any correlation with the mental symptoms.

Table VI shows the number of psychiatric symptoms at the follow-up in relation to earlier psychiatric history—that is, nervous complaints before and during pregnancy respectively. It will be seen that those women who kept well until delivery have significantly fewer psychiatric symptoms at the follow-up than the others.

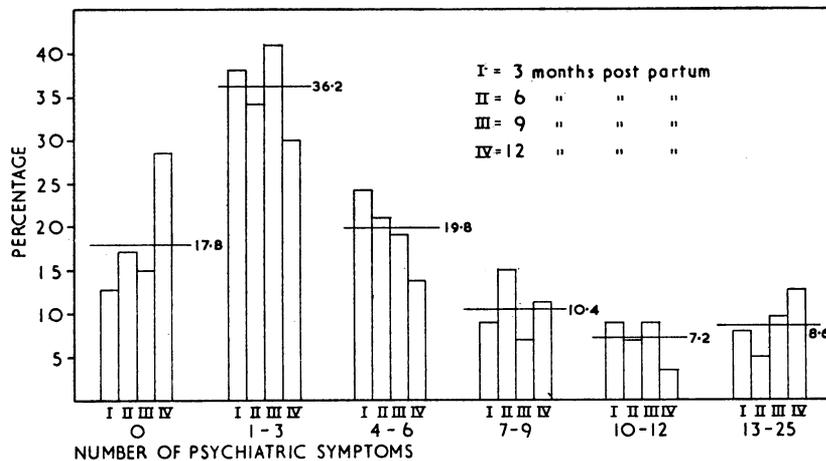


FIG. 1.—*Distribution of number of psychiatric symptoms in relation to time of observation. I, II, III, and IV indicate the four examination groups. The lines indicate the mean values.*

Discussion

We have made no attempt to ascertain the validity of our method and do not claim that our study is a measure of the total psychiatric morbidity of the sample. Nor do we claim that our questionnaire admits of definite diagnoses. It

TABLE V.—*Correlations Between Number of Psychiatric and Gynaecological Variables**

| Variable | χ^2 | D.F. | P |
|---|----------|------|----------|
| Nausea during pregnancy | 6.92 | 3 | < 0.05 |
| Temporary increased post-partum haemorrhage | 3.16 | 3 | N.S. |
| Temporary increase of lochia | 12.48 | 3 | < 0.01 |
| Genital pains | 33.53 | 3 | < 0.0001 |
| Puerperal fever > 2 days | 6.66 | 1 | < 0.01 |
| Feeling of abdominal laxity | 22.64 | 3 | > 0.0005 |
| Lactation trouble | 5.10 | 3 | N.S. |

| Variable | No. of Psychiatric Symptoms | | | | χ^2 | D.F. | P | |
|--|-----------------------------|-----------|------------|-----------|-----------|-------|---|---------|
| | 0 | 1-6 | 7-12 | > 12 | | | | |
| Duration of breast-feeding | < 8 weeks | 13 (13.8) | 56 (59.6) | 16 (17.0) | 9 (9.6) | 2.74 | 6 | N.S. |
| | 8-24 " | 32 (19.2) | 89 (53.3) | 28 (16.7) | 18 (10.8) | | | |
| | > 24 " | 11 (23.9) | 23 (49.9) | 8 (17.4) | 4 (8.7) | | | |
| Point of time for return of menstruation | < 8 weeks | 22 (24.4) | 39 (43.3) | 23 (25.6) | 6 (6.7) | 7.45 | 4 | N.S. |
| | 8-24 " | 39 (16.3) | 142 (59.4) | 35 (14.6) | 23 (9.6) | | | |
| | > 24 " | 4 (15.4) | 16 (61.5) | 2 (7.7) | 4 (15.4) | | | |
| Change of duration of menstrual cycle | Shorter | 1 (05.0) | 13 (65.0) | 3 (15.5) | 3 (15.0) | 10.27 | 4 | < 0.05 |
| | Unchanged | 63 (22.4) | 153 (54.5) | 43 (15.3) | 22 (7.8) | | | |
| | Longer | 3 (06.7) | 26 (57.8) | 10 (22.2) | 6 (13.3) | | | |
| Change of flow of menstruation | Increased | 11 (10.6) | 59 (56.7) | 22 (21.2) | 12 (11.5) | 11.78 | 6 | N.S. |
| | Unchanged | 53 (23.6) | 123 (54.9) | 30 (13.4) | 18 (8.0) | | | |
| | Decreased | 3 (10.7) | 16 (57.1) | 6 (21.4) | 3 (10.7) | | | |
| Menstruation | More painful | 1 (03.1) | 16 (50.0) | 10 (31.3) | 5 (15.6) | 16.24 | 6 | < 0.025 |
| | Unchanged | 48 (22.1) | 114 (52.5) | 32 (14.8) | 23 (10.6) | | | |
| | Less painful | 18 (16.7) | 68 (63.0) | 17 (15.7) | 5 (4.6) | | | |
| Sexual adaptation | Worse | 4 (09.5) | 17 (40.5) | 12 (28.6) | 9 (21.4) | 15.82 | 6 | < 0.025 |
| | Unchanged | 51 (19.5) | 149 (57.1) | 41 (15.7) | 20 (7.7) | | | |
| | Better | 14 (18.0) | 44 (56.4) | 15 (19.2) | 5 (6.4) | | | |

* Correlations in which variables have more than one dimension are described, the resulting figures are given along with the statistical findings. Figures in parentheses are percentages.

seems safe, however, to assume that the results obtained represent minimum figures of the frequency of psychiatric symptoms, for quite a number of people, even though they are anonymous, probably hesitate to admit anything that could be taken as a sign of mental abnormality. Further, there seems to be no reason for anybody to overemphasize any such defect.

TABLE VI.—Frequencies of Post-partum Psychiatric Symptoms in Relation to Earlier Psychiatric History Before and During Pregnancy, Respectively (See also Fig. 2)

| No. of Psychiatric Symptoms Post Partum | A. Mental Symptoms Before Pregnancy | B. Well Before Pregnancy; ≥ 4 Symptoms During Pregnancy | C. Well Before Pregnancy; < 4 Symptoms During Pregnancy | χ^2 | D.F. | P |
|---|-------------------------------------|--|---|----------|------|--------|
| 0 | 2 | 0 | 66 | 42.41 | 6 | <0.001 |
| 1-6 | 20 | 30 | 172 | | | |
| 7-12 | 6 | 19 | 45 | | | |
| >12 | 8 | 10 | 16 | | | |
| Total | 36 | 59 | 299 | | | |

Note: In 10 cases information was incomplete.

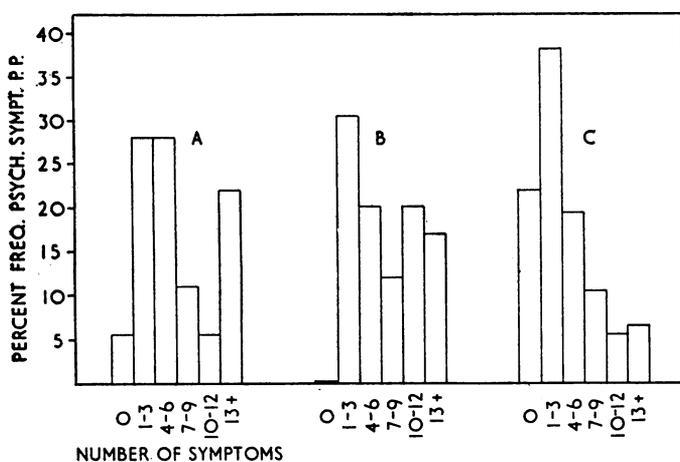


FIG. 2.—A, Subjects with psychiatric symptoms before pregnancy. B, Subjects well before pregnancy, four or more psychiatric symptoms during pregnancy. C, Subjects well before pregnancy, fewer than four psychiatric symptoms during pregnancy. (See also Table VI.)

Some epidemiological studies in recent years have shown that psychiatric symptoms are extremely common in different populations (Essen-Möller, 1956; Langner and Michael, 1963; Leighton *et al.*, 1963). It is therefore hardly surprising to find that a substantial number of women in the present study accepted one or more questions on subjective psychiatric symptoms. The majority, however, admitted to only a few symptoms. An interesting feature among these subjects with few symptoms is that their symptoms seem to diminish in number with increasing periods of observation. This conclusion can be drawn from comparing the group with no symptoms and the group with four to six symptoms (Fig. 1). Such a trend is not found in the groups with seven or more symptoms. From a prognostic point of view it seems reasonable, therefore, to draw a line of demarcation between six and seven symptoms—that is, a low-scoring and a high-scoring group. For statistical purposes these two groups were further divided into two. Our findings thus suggest that high-scoring subjects differ from low-scoring subjects in respect of duration of symptoms. Whether any other psychiatric difference exists between these groups cannot be decided from our present study. Nor can we determine whether a high number of symptoms is the result of the pregnancy or whether we have to deal with chronically neurotic women who project their disability on to the pregnancy.

To some extent light is thrown upon this question when the subjects are divided according to their earlier history of nervous complaints. It appears that those women who admit having had nervous complaints before the last pregnancy, as

well as those who state that their symptoms began during that pregnancy, show significantly more symptoms at the follow-up than those who have remained well until delivery. Nevertheless, the latter group of women comprised a considerable number of individuals with more than six symptoms (61 subjects, or 15% of the total sample). Even when errors inherent in our method are allowed for it seems quite possible that pregnancy can act as a provoking or an aetiological factor in neurosis. Another interesting feature is that the prognosis of such psychiatric symptoms as begin during pregnancy is as unfavourable as that of pre-pregnancy neurosis.

The failure to find any prognostic factor amongst the background variables has two interesting aspects—namely, the non-correlation between psychiatric symptoms on the one hand and age and parity on the other. The size of the sample in respect of the extremes of age and parity may account for this failure. The more interesting is the finding that earlier abortion means a less favourable prognosis. According to some earlier reports a correlation between spontaneous abortions (particularly repeated abortions) and psychiatric disease has been suggested. (For a modern review see Rheingold, 1964.) However, the very strong correlation found in our series seems to be unique, as this series represents a random sample of parturient women. Furthermore, the subjects did not know that their answers to the psychiatric questions were to be considered in relation to their previous abortions, as this latter information was obtained from the hospital records. Three possible explanations may be discussed: (1) that a great number of these previous abortions were in fact illegal, which in turn indicates an unstable personality and/or unfavourable social conditions; (2) that some abortions were psychosomatic events; and (3) that abortion *per se* has an unfavourable psychiatric effect. In any event the findings call for further investigation.

In contrast to the variables registered in the hospital records, the gynaecological variables of the questionnaire provide many positive correlations with the psychiatric symptoms. This is in many respects not surprising, since it was not unknown. Many neurotic or psychasthenic subjects have an increased susceptibility to pain and discomfort that may account for at least some of the significant correlations between psychiatric symptoms and functional genital pains, dysmenorrhoea, dyspareunia, and complaints of looseness and heaviness in the lower abdomen.

The generally close relationship between mental distress and frigidity or other kinds of sexual maladaptation, often leading to a vicious circle, is well known. A very common view is that frigidity is usually a part of a neurotic syndrome. So far as sexual maladaptation after parturition is concerned, our findings confirm this view.

A different view must be taken of the correlations between psychiatric symptoms and the gynaecological parameters which can be more objectively registered (cf. Table V). Organic as well as psychosomatic mechanisms must here be taken into consideration. From the studies by Sheehan and Murdoch (1938) it is known that in exceptional cases profound organic lesions of the hypothalamic-hypophysial system may occur during and after delivery, producing severe somatic and mental symptoms. There were no such cases in this series, but the possibility of less distinctive subclinical disorders based on such a mechanism cannot be excluded. Our present knowledge does not admit of any conclusions regarding the pathophysiology behind the significant relation between changes of the menstrual cycle after its return and psychiatric symptoms. Menstrual irregularities have very often a psychosomatic explanation—for reviews see af Geijerstam (1960) and Bagge (1963)—but when dealing with a post-partum series primary organic causes should also be considered.

Variables indicating a disturbance of the post-partum involution processes (temporary increase of the lochia, puerperal fever, impaired involution of the abdominal muscles) showed

a significant relation to the psychiatric symptoms. It is impossible to draw any causal conclusions from these interesting findings. Further, more detailed studies will, however, be made in this regard.

Finally, we want to point out the fact that we found no correlation between psychiatric symptoms and length of breast-feeding or lactation trouble. Our investigation thus lends no support to the concept of "lactation" psychiatric disorders.

Summary

A retrospective investigation of post-partum disorders with particular regard to frequency of symptoms and predisposing factors has been carried out. Questionnaires exploring symptoms of mental disease and gynaecological aberrations were sent to a representative random sample of delivered women.

We found a notably high frequency of post-partum mental symptoms. Over 25% of the sample had more than six symptoms; 20% had four to six symptoms.

We found no significant correlations between the frequency of mental symptoms and age, civil state and duration of marriage, social status, parity, toxæmia, the course of delivery and puerperium during the in-patient period, nor was there any correlation with the duration of stay in hospital after delivery. Women with earlier spontaneous abortions had significantly more psychiatric symptoms than the rest. Further, we found significant correlations between the frequency of mental symptoms and post-partum gynaecological aberrations, such as disturbances of the post-partum involution process, genital pains, dyspareunia, and dysmenorrhœa.

We wish to stress the fact that there was no relation between psychiatric symptoms and length of breast-feeding or lactation trouble.

Concerning earlier psychiatric history, we found that the onset of symptoms during pregnancy portends a prognosis as unfavourable as pre-pregnancy neurosis.

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Appendix I

Part of the questionnaire, showing the items designed to explore post-partum mental symptoms.

The items below (12-40) ask you to state your condition during the last three months in relation to how you felt during the year before the last pregnancy.

12. Have you become more continuously tired?
13. Do you feel that you need more sleep now than before?
14. Have you difficulty in falling asleep?
15. Do you get more easily tired?
16. Do you feel more irritable?
17. Are you more troubled by loud noises?
18. Have you a feeling that things and people around you seem unreal?
19. Have you a feeling that you have been going about "as in a mist"?
20. Have you needed extra domestic help?
21. Is it more difficult for you to relax?
22. Have you become more anxious?
23. Do you get attacks of tachycardia?
24. Do you get attacks of shortness of breath?
25. Do you perspire more easily?
26. Do you get headache more often?
27. Do you get a feeling of a "lump" in your throat?
28. Do you get a feeling of unsteadiness or dizziness?
29. Do you get attacks of fear?
30. Have you become afraid of being alone?
31. Is it not uncommon that a recently delivered woman becomes afraid of hurting her child. Have you had such a feeling?
32. Do you have difficulty in starting work in the morning?
33. Do you have a feeling of inferiority?
34. Do you have a feeling of hopelessness for the future?
35. Do you feel more depressed?
36. If you have answered "yes" to item 39, have you felt worse in the morning than in the afternoon?

Appendix II. Background Variables

| | |
|---|---|
| Examination groups 3 months post partum 6 " " " 9 " " " 12 " " " | Pregnancy Hyperemesis Mild toxæmia Moderate toxæmia Severe toxæmia Anaemia. Hb < 9.5 g./100 ml. Infection of clinical relevance |
| Age in years < 20 20-24 25-29 30-34 35-39 > 40 | Delivery Normal Vaginal delivery operation (excluding caesarean section) Caesarean section Post-partum operative procedures (manual removal of placenta, suture of large ruptures, etc.) Haemorrhage 500-1,000 ml. " > 1,000 ml. |
| Civil state and duration of marriage Married < 1 year 1-2 years 2-5 " " 5-10 " " > 10 " " Unmarried Divorced Widowed | Puerperium Fever > 38° C. at least 2 days Uterus Mammæ Thrombosis Urinary tract Others |
| Social state and place of living Group I " II " III Town district Rural district | Duration of stay in hospital < 6 Days 6-9 " " > 9 " " |
| Parity 1 2 3 4 5 6 7 8 9 > 9 | Child Male Female Weight: < 2,500 g. 2,500-4,500 g. > 4,500 g. |
| Spontaneous abortion 0 1 > 1 | Healthy Transferred to paediatric department |
| Legal abortion + - | |
| Veneral disease + - | |