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Mild Hypomania (the Highs) can be a Feature of the First Postpartum Week

Association with Later Depression

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About 10% of women show elation and associated features of hypomania in the first 5 days following childbirth. These symptoms can be detected using a self-rating scale (the 'Highs') based on SADS-L criteria. This phenomenon has been confirmed using the observer-rated Comprehensive Psychopathological Rating Scale, which also revealed a high degree of related irritability. Significantly more women scoring ⩾8 on the Highs scale at 3 days postpartum went on to manifest depression at 6 weeks than did subjects with no psychopathology in the early puerperium. It is suggested that the 'highs' followed by depression may be a mild and common form of bipolar disorder.

In a previous study (Hannah *et al*, 1993), employing the Schedule for Affective Disorders and Schizophrenia – Lifetime Version (SADS-L; Endicott & Spitzer, 1978), we interviewed women who had recently suffered from postpartum depression, and noted that about one-quarter of them described symptoms occurring during the first postpartum week which met the criteria for hypomania. Elsewhere in the literature such symptoms have been referred to, in passing, as a postpartum phenomenon (Handley *et al*, 1977; Ballinger *et al*, 1982; Brinsmead *et al*, 1985), but never focused upon. It is well established that the severe postnatal psychosis that affects about one in 500 postpartum women is usually of the manic depressive type (Brockington *et al*, 1981), and that women with a history of manic depression are vulnerable to relapse in the postpartum period (Brockington *et al*, 1982). It is possible that a milder version of this symptom complex is more common than had previously been realised.

In the present investigation, we have attempted to study this phenomenon of postnatal elation in greater detail, together with its association with the other psychological states of the early puerperium. In the first postpartum week, we used a self-rating questionnaire that we devised, based on SADS-L criteria for hypomania, which we have termed the 'Highs' scale, together with clinical interview. We also used the Edinburgh Postnatal Depression Scale (EPDS; Cox *et al*, 1987) and the Kennerley Blues scale (Kennerley & Gath, 1989). At 6 weeks postpartum we have used the Highs scale again, together with the EPDS, to elucidate any links with later depression.

Method

Day 5 study (pilot study)

Two hundred and thirty-two women who had had a live birth were approached on the wards of Queen Charlotte's and Chelsea Hospital at 5 days postpartum and asked to fill in the Highs questionnaire: 191 agreed. At 6 weeks postpartum, those who had cooperated previously were sent the questionnaire again by post and 171 returned the completed form.

The Highs scale is given in the Appendix. The cut-off for a diagnosis of the Highs to be made was arbitrarily set at a score of 8. This required at least three symptoms to be present in addition to euphoria, and was somewhat more stringent than the criteria required for a classification of hypomania by the SADS-L.

Day 3 study (main study)

Three hundred and twenty-six women who had had a live birth by vaginal delivery were approached on the wards of the hospital on the third day after giving birth, and asked to participate in the study: 258 agreed to fill in forms on that day. They filled in the Kennerley Blues scale, based on that described by Kennerley & Gath (1989), using the primary Blues and hypersensitivity clusters and arranged to resemble the Highs scale (see Appendix); it was given an arbitrary cut-off of 8 to detect more severe cases. The mothers also filled in the EPDS scale. At 6 weeks postpartum, they were sent the Highs scale and the EPDS scale by post, and 212 returned the forms. On day 4, 18 of these patients, a group enriched with those scoring 8 or over on the Highs scale, were interviewed, blind, by P.L., using the Comprehensive Psychopathological Rating Scale (CPRS; Asberg *et al*, 1978).

Spearman rank correlations were used for evaluation.

Results

The results of two studies are presented. The first study (day 5) was conducted to determine the prevalence of the highs in the first 5 postpartum days and the sixth postpartum week. This was followed by a fuller study on day 3 (when more patients were available), and included a follow-up evaluation of depression using a postal EPDS.

Day 5 study

High scores. At five days, 21 out of 191 (11%) scored ⩾8 at 5 days and 13 of 171 (7.6%) scored ⩾8 at 6 weeks. However, only 4 of the 19 (21%) original high scorers who returned forms at 6 weeks were still scoring highly on the second occasion. Sixteen of the 21 high scorers on day 5 had filled in details of how they had felt on each postpartum day. Mean scores for each day were 8.2, 9.3, 7.8, 8.7 and 8.1, suggesting a fairly constant rating over the 5-day period. Eleven of the high-scoring subjects on day 5 answered a question about when these feelings started, and ten of these replied "immediately after labour", or "on the first postpartum day".

Day 3 study

High scores. At 3 days, 27 out of 258 (10%) scored ⩾8, and 15 out of 212 (7%) scored ⩾8 at 6 weeks; 5 of the 18 (28%) original high scorers still scored ⩾8 at 6 weeks, confirming that, in general, it was a transient phenomenon. Three of the other 6-week high scorers had scored above threshold on the blues or the EPDS scales at 3 days.

Blues scores. At 3 days, 32 out of 258 (12%) scored ⩾8. There was a positive correlation between the Blues and the Highs scores of 0.33 ($P<0.001$). However, when the questions relating to restlessness and lability were omitted from the Blues scale and only questions 1, 2, 3 and 6 were employed, the correlation coefficient became 0.08 (NS). The correlation between the Highs score and the EPDS was 0.05 (NS).

EPDS scores. At 3 days, 37 out of 258 (14%) scored ⩾10, and 16 out of 258 (6%) scored ⩾13; at 6 weeks, 50 of 212 (23%) scored ⩾10, and 27 of 212 (13%) scored ⩾13. The correlation between the EPDS score on the two occasions was 0.62 ($P<0.001$). The correlation between the Blues score and the EPDS score on day 3 was 0.50 ($P<0.001$). Eighteen mothers scored above the threshold (8 and 10 respectively) on both. Five scored above the threshold on the Highs at 3 days and also scored 7, 9, 6, 10, 10 on the Blues and 10, 13, 14, 16, 10 on the EPDS, respectively.

No psychopathology on day 3. Seventy per cent (182/258) scored below the threshold on all three rating scales.

Links between day 3 scores and later depression

Table 1 shows the links between the Blues and Highs scores at 3 days and the EPDS scores at 6 weeks. Fifty per cent of those who scored highly on either of these scales became depressed later (scoring ⩾10 EPDS), and about 28% and 22% respectively of these scored ⩾13 on the EPDS. These were significantly more than among those with no early psychopathology, using a χ^2 test.

Pure Highs. Three of the 18 women who scored ⩾8 on the Highs scale had also scored highly on the Blues or EPDS scales, and these were among the nine who became depressed later. If the pure Highs (no Blues ⩾8 or EPDS ⩾10) only are considered, six out of 15 (40%) became depressed (EPDS ⩾10) later. This number is still significantly greater than depressed mothers who had had no psychopathology in the first week ($\chi^2=4.2$, $P<0.05$). With an EPDS cut-off of 13, the same trend was apparent (3/15 or 20%), but was no longer statistically significant.

EPDS. Sixteen (55%) of the 29 scoring ⩾10 at 3 days scored ⩾10 at 6 weeks. This number is also significantly greater than in those with no psychopathology ($\chi^2=19$, $P<0.001$).

Scores of 7 on Blues and Highs. The cut-off of 8 for the Highs scale was chosen arbitrarily, so it was of interest to determine whether a score of 7 was also associated with later depression. One out of 6 (16%) who scored 7 on the pure Blues scale scored ⩾10 on the EPDS at 6 weeks. Three out of 12 (25%) of those who scored 7 on the pure Highs scored ⩾10 on the EPDS at 6 weeks. These findings were not significantly different from those for the rest of those women with no psychopathology.

Validation of the Highs scale by the CPRS

The association between the blind observer-rated diagnosis by the CPRS and the self-rating Highs score is shown in Fig. 1. Three out of four of those women who scored ⩾8 were diagnosed as having mild mania, whereas only three out of 14 of those with a lower score received this diagnosis ($\chi^2=4.0$, $P<0.05$). None of those scoring below 4 had a rating of mania or mild mania. None of the women were sufficiently ill to be admitted to hospital; the mild mania was described as a subclinical but discernible mild psychopathology. In five out of the six cases it was associated with a high degree of irritability. The correlation between the Highs score and the mania subscore on the CPRS was 0.62 ($P<0.01$).

Table 1
Links between day 3 Highs and Blues scores and later depression

Day 3	*n*	6 weeks EPDS ⩾10			6 weeks EPDS ⩾13		
		n	%	*P*	*n*	%	*P*
No psychopathology	152	27	18		11	7.2	
Highs	18	9	50	0.001	4	22	0.05
Blues	28	14	50	0.001	8	28	0.001

χ^2 analysis was used for statistical evaluation.

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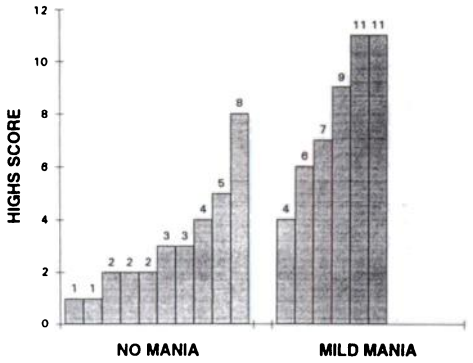

Fig. 1 Individual values of the Highs score in women diagnosed as with or without mild mania by the Comprehensive Psychopathological Rating Scale.

Discussion

Both the questionnaire surveys (day 5 and day 3) confirmed that at least 10% of patients show symptoms that meet the SADS-L criteria for hypomania in the first postpartum week. These symptoms seem to be present each day for at least the first 5 days in the women that have them, but they have usually disappeared by week 6. They were reported to appear on the first postpartum day.

An important question to consider is whether a high score on the Highs scale simply reflects happiness at having a baby, rather than any form of psychopathology. However, the clinical interview and CPRS did confirm the presence of mild mania or hypomania, with a high prevalence of irritability. Another question is whether we are just taking a broader view of the syndrome that has been called the Blues. The presence of elation or euphoric symptoms has certainly been noted in some studies of the Blues (Stein, 1982; Kennerley & Gath, 1989). Some individuals scored highly on the Highs scale, and also on the Blues or EPDS scale at the same time. However, the weak but significant correlation with the Blues score disappeared when questions relating to lability and restlessness were omitted. The Highs also had a different time of onset from the Blues, starting on day 1 instead of day 3 or 4. We have also found that women with the Highs have significantly lower plasma cortisol levels than those with no psychopathology (unpublished observations), as opposed to those with the Blues who have been reported to have raised levels (Okano & Nomura, 1992). For all these reasons – different symptoms, different time of onset, and different associated biochemistry – it seems reasonable to regard the highs as distinct from the Blues. However, it may well be that the two are biologically related, both reflections of an instability of mood induced by parturition. It remains true that the elation or euphoria can coexist with anxiety or depression, as is the case in more severe bipolar disorders.

The significant association between the Highs and later depression also suggests that the phenomenon is not solely one of simple elation. A high score on the Blues, the Highs or the EPDS at 3 days was associated with an approximately 50% risk of later depression, EPDS $\geqslant 10$, and about 22% of an EPDS $\geqslant 13$. We are aware that not all subjects manifesting the Highs at 3 days returned their forms at 6 weeks; in the unlikely event that all of these were non-depressed, this could undermine our results. However, it is more likely that the bias would be the other way, non-responders being more likely to be depressed than the responders. Also, in this study the risk of definite depression, using the higher EPDS threshold of 13, following pure Highs (no associated depression or Blues) failed to reach statistical significance because of the small numbers involved. However, when data from our current studies are included, we have found that 7/36 (19%) pure Highs went on to be depressed (EPDS $\geqslant 13$) at 6 weeks, and that this is significantly greater than the proportion in those with no early psychopathology ($\chi^2 = 5.1$, $P < 0.05$) (unpublished observations).

With both the Highs and the Blues a relatively high cut-off rate was used to identify a link with later depression. There is a widespread belief that about 50% of women suffer from the Blues, but the definition of a case is somewhat arbitrary. It is also apparent from Fig. 1 that women scoring 4–8 on the Highs scale can also show symptoms of mild mania. However, those scoring 7 on either of these scales did not seem to have an increased risk of later depression.

Wicki & Angst (1991) have followed a cohort of the general population and estimate a one-year prevalence rate for hypomania of 4%. Over a period of time it was associated with both major depression and dysthymia. They draw particular attention to the large amount of psychomorbidity existing in a general population, often of a transient nature, which does not meet the criteria used by psychiatrists to define a case and is often neglected by the medical profession. This may be true of the Highs. It has been relatively neglected by professionals, although we have found that it is quite well recognised by mothers at an anecdotal level.

The condition has, however, occasionally been referred to in the literature. Handley *et al* (1977) noted that three out of the 18 postpartum patients they studied had a substantially elevated mood although, in a later study of 77 women, none showed

a high degree of puerperal elation (Handley *et al*, 1980). Stein *et al* (1976), in a study of 18 women in the first postpartum week, recorded one with hypomania. Ballinger *et al* (1982) studied 34 women and observed that about one-third showed a distinct upswing in mood between days 2 and 4 postpartum, and that this phenomenon was related to an increased output of cyclic adenosine monophosphate (AMP), a finding also observed in mania. Brinsmead *et al* (1985) studied 18 women in detail through the perinatal period. They found that some had an elevation in mood between 38 weeks of pregnancy and day 2 postpartum, and the greater this elevation the higher the depression score at 8 weeks postpartum.

It is possible that the phenomenon is triggered by the large hormonal upheavals that occur at this time. Both β-endorphin and cortisol levels can reach a high level at parturition (Newnham *et al*, 1984; Smith *et al*, 1990) and then fall rapidly to normal, although the dexamethasone suppression test is likely to remain abnormal in most women for 2–3 weeks postpartum (Owens *et al*, 1987). In animal models, oestrogen appears to have an effect on the dopaminergic system in particular; for example, oestrogen withdrawal has been shown to cause dopamine receptor supersensitivity (Gordon *et al*, 1980). Patients who relapse with puerperal psychosis have recently been shown, by an apomorphine challenge test, to have supersensitive dopamine receptors (Wieck *et al*, 1991). It may be that the oestrogen withdrawal of parturition also brings about a more widespread hypomania by this mechanism.

In summary, the Highs appears to be a transient subclinical phenomenon, distinct from the Blues, which frequently occurs in the first postpartum week, and is related to later depression. We suggest that it may be biologically based. However, it may be that other people who experience positive life events, without having undergone the hormonal upheaval of parturition, would respond in a similar manner. It would be of interest to study fathers in this context.

Appendix

The "Highs" questionnaire

As you have recently given birth, we would like to know how you have been feeling. In the past 3 days, have you felt any of the following conditions?

If you answer yes to any of these questions, please indicate on which days these feelings were present – day 1 is the first day after your baby was born, day 2 the next day etc.

	Yes, a lot	Yes, a little	No	Days
Have you felt elated (high or unusually cheerful)?				
Have you felt more active than usual?				
Have you felt more talkative than usual, or a pressure to keep on talking?				
Have your thoughts raced?				
Have you felt that you are a specially important person with special talents or abilities?				
Have you felt the need for less sleep?				
Have you had trouble concentrating because your attention keeps jumping to unimportant things around you?				

Scoring: 2 for Yes, a lot; 1 for Yes, a little. Must score a Yes on elation for inclusion. Score of $\geqslant 8$ for a "case".

The "Blues" questionnaire

Below is a list of words which new mothers have used to describe how they are feeling. Please indicate how you have been feeling, compared to normal, by ticking the appropriate space.

If you answer yes to any question, please indicate on which days these feelings were present.

	Yes, more than usual	No different from usual	Days
1. Tearful			
2. Tired			
3. Anxious			
4. Over-emotional			
5. Changeable in your spirits			
6. Low spirited			
7. Forgetful, muddled			
8. Mentally tense			
9. Restless			
10. Over-sensitive			
11. Up and down in your mood			

Scoring: 1 for Yes. Score of $\geqslant 8$ for a "case".

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