



Asking about Postpartum Depressive Symptoms – An Easy Way to Identify Maternal Distress at 18 Months?

Lagerberg D* and Magnusson M

Department of Women's and Children's Health, University Hospital, Uppsala, Sweden

*Corresponding author: D Lagerberg, Department of Women's and Children's Health, Uppsala University, Barnhälsovårdens länsavdelning, Akademiska sjukhuset, SE-75185, Uppsala, Sweden, Tel: +46 186115973; Fax: +46 18504511; E-mail: dagmar.lagerberg@kbh.uu.se

Abstract

Aim: To determine whether a simple question about maternal recall of postpartum depressive symptoms could aid in identifying maternal distress at 18 months postpartum.

Methods: 1168 mothers of children aged 17-20 months completed a questionnaire including the item "Were you low/sad after delivery?" Low postpartum distress (PD) was defined as "no, not at all", medium PD "yes, somewhat", and high PD "yes, very". Maternal stress, perceived child difficultness and difficulty to handle child mobility, i.e. to prevent the child from moving around in a way the mother may find tiresome, were used as criteria of current maternal distress.

Results: With one exception (spouse relationship stress), low PD mothers reported the most favourable and high PD mothers the least favourable outcomes in terms of stress, perceived child difficulty and problems handling child mobility, with medium PD mothers in between. All these differences were significant. Effect sizes were small to large.

Conclusion: Our questionnaire item about postpartum distress seemed valid in differentiating between levels of current maternal distress, defined in terms of stress, perceived child difficultness and difficulty to handle child mobility. The fact that our item was retrospective and required recall by the mothers limited its value somewhat. However, our findings indicate that the 18-month check-up at the child health centre offers a good opportunity for asking, on a routine basis, some simple question about the mother's current stress or distress.

Key Notes

- Maternal stress and child difficultness at 18 months were significantly associated with maternal identification of postpartum distress as measured by a questionnaire item: "Were you low/sad after delivery?"
- This question may aid child health services in identifying mothers who may require support.
- We suggest that the child health services complement their screening of postpartum depression by asking mothers about their current stress or distress at about 18 months.

Introduction

Postpartum depression is widely acknowledged as a major threat to maternal and early child health. The prevalence is estimated at 8% to 15%, but large variations are reported from different countries [1]. Furthermore, it has become increasingly evident that maternal depression concerns not only the period immediately following childbirth. For a considerable minority, depressive symptoms are recurrent or sustained from early pregnancy to one year postpartum (3%, [2]), and symptom levels may even increase somewhat through the period 0 to 7 years (16%, [3]).

Maternal stress has been consistently observed to be associated with depressive symptoms [4,5]. The same is true for a perceived difficult child temperament [6,7] and child behaviour. According to Eastwood et al. [8], "Baby being demanding" was significantly associated with maternal depressive symptoms. It can be assumed that child-caring tasks involving much mobility and energy on the part of the mother are particularly burdensome for depressed mothers.

The Swedish Child Health Services (CHS) are organised in a comprehensive network of child health centres, headed by nurses specialised in pediatrics or public health. Practically all families have at least one contact with the services during the child's first two years (99.9 % in Uppsala country [9]). The activities are free of charge and include health check-ups, vaccinations, referrals and support to parents of children aged 0-5. The Edinburgh Postnatal Depression Scale, EPDS [10], is widely used to identify postpartum depressive states. The recommended cutoff score for Swedish mothers is 11/12 [11]. The EPDS is a quick and simple screening device but not a diagnostic tool, so high-scoring mothers have to be referred for proper diagnosis and treatment. In spite of the use of a cutoff, postpartum depression cannot simply be dichotomised into yes and no. There is no particular point at which we can say "depression begins here". A gradient would be a more adequate description and acknowledgement of the importance of engagement and discussion about maternal wellbeing in general.

Alternative and even quicker methods than the EPDS have been tried, for instance the two so-called Whooley questions [12,13]. Their

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wordings are: “During the past month, have you often been bothered by feeling down, depressed, or hopeless?” “During the past month, have you often been bothered by little interest or pleasure in doing things?” The two questions are considered a useful measure with similar test characteristics as other case-finding instruments [12], but as a matter of fact, they were tried on adult patients in primary care, mainly middle-aged men. Arroll et al. [14] found that adding another question – “Is this something with which you would like help?” – would improve the specificity of the two questions, i.e. the capacity to exclude correctly non-depressed cases.

Two previous studies from the same project

Our focus in the present paper is on the usefulness of a quick and simple questionnaire item to identify distress in mothers of children aged about 18 months. We previously used the same material in analyses of postpartum depressive states, but in the present context we differentiated between two degrees of depressive states and included considerably more observations. Thus the differentiation by degree (except in the logistic regressions, see below) and the higher number of observations is what can be considered new in this paper as compared with our previous publications [15,16].

One of these previous studies [15] analysed outcomes in different categories of mothers, divided by their EPDS scores. Elevated levels of stress and perceived child difficultness began to appear already in mothers scoring relatively low (6-8) on the EPDS, not only in higher-scoring mothers. In another study [16] we combined EPDS scores with a simple questionnaire item about recall of sadness postpartum. In the great majority of cases, mothers qualifying as depressive according to both the EPDS (with cutoffs of 9 or 12) and the questionnaire item reported the highest levels of stress and perceived difficultness in the children. Mothers who did not appear depressive according to either measure had the lowest levels, with those with depressive symptoms according to either the EPDS or the questionnaire item, but not both, located in between.

In the above-mentioned study combining EPDS scores and a questionnaire item [16], there was no perfect correlation between the EPDS and the questionnaire item, so we had to accept that a certain proportion of mothers could be described as depressive according to one measure but not the other. Had we left out the EPDS and relied only on the questionnaire item, we would have failed to identify 6.8 % mothers with an EPDS score of 9 points or more but not depressive according to the questionnaire (1.1 % with a cutoff score of 12). On the other hand, the loss would have been even greater if we had skipped the questionnaire item and relied only on the EPDS: 15.9 % and 24.1 %, respectively, scored below 9 (12) on the EPDS but reported lowness/sadness according to the questionnaire. This can be calculated from Magnusson et al. (Table 1). More mothers thus were identified by the questionnaire item than by the EPDS [16].

Our earlier analyses [15,16] were restricted to mothers who were offered the EPDS as part of an intervention (n=438 and 352, respectively). In the present paper, we used the same questionnaire information as before but used a larger number of observations, i.e. all mothers who had answered the questionnaire item. However, we excluded all children of intervention mothers who were supposed to have been offered the EPDS (n=758) and also a small number of children of comparison mothers (n=26) who happened to have completed the EPDS without being part of the intervention. This was because we wanted to avoid possible contamination from the EPDS. Mothers who remembered having completed the EPDS could have been influenced by this in answering the questionnaire, particularly if they recalled having had a high EPDS score, indicating a depressive state. Our final sample included 1168 children (Table 1).

Aim of the present study

The aim was to analyse whether a simple question could be used to identify distressed mothers at about 18 months. We also wanted to see whether our question’s response options (two levels of lowness/sadness) were associated with increasing levels of stress and perceived

child difficultness, i.e. a dose-response reaction or a gradient. Finally, we wanted to assess the significance of stress and perceived child difficultness in terms of magnitude (small, moderate or large). This was done by the use of effect sizes. Effect sizes express outcomes in terms of standard deviations and give a clinically relevant picture of differences between groups, for instance between depressed and non-depressed mothers. An effect size of 0.2 is regarded as small, 0.5 as moderate, and 0.8 as large [17]. An effect size of 0.5 is considered possible to be seen by the eye of an experienced observer. A p-value indicating statistical significance, on the other hand, does not necessarily tell whether a difference between groups is of clinical importance. In the present study, which did not measure effects but only associations, effect sizes did not really have to do with causality, but only with the size of group differences.

Material and Methods

The mothers and children participated in an intervention study testing new psychosocial methods at selected child health centres, CHC:s (for details about the intervention [18]). To avoid contamination from the intervention and its component part EPDS, the intervention group was excluded (see above). The children were born from September 2000 through August 2001 and from April 2003 through March 2004. In order to get a reasonably homogeneous sample, all children younger than 17 months or older than 20 months were excluded, as were twins. The questionnaire and a prepaid envelope were distributed to the mothers by the CHC nurse when the children came for their 18-month check-up. The material is described in Table 1.

Predictors

Our main predictor, the simple questionnaire item, had the following wording: “Were you low/sad after delivery?” (with three response options: “no, not at all”, “yes, somewhat”, and “yes, very”). Previously we had combined the two “yes” responses into one, but in the present study we used all three options. The response “no, not at all” gave the category Low Postpartum Distress (PD) (n=856, 73.3%), “yes, somewhat” the category Medium PD (n=249, 21.3%), and “yes, very” the category High PD (n=63, 5.4%).

Parity (first-born yes/no) and the child’s *gender* were extracted from the questionnaire and the CHC record. The following were taken from the questionnaire: *mother’s year of birth* (age was dichotomised by the median into younger (18-32) and older (33-48); *mother’s country of birth* (Sweden/other); *mother’s education* (elementary or less vs. higher); *mother’s education* (college or university vs. lower); *mother’s marital status* (single vs. married or cohabiting).

Outcomes

The outcomes described in this section were used as measures of the mothers’ current levels of stress, perceptions of child difficultness and perceived problems in handling child mobility. They were used as a means to analyse if there was any association between our questionnaire postpartum distress item and indications of current maternal difficulties.

Table 1: Study material

Numbers and reasons for exclusion	Left in study
Children born September 2000 – August 2001, April 2003 – March 2004: 3130	3130
Excluded:	
758 children of intervention mothers	2372
26 comparison children whose mothers completed the EPDS	2346
204 children of mothers who had moved	2142
198 children of mothers who refused to participate or were not invited	1944
60 twins	1884
417 children whose mothers did not respond (response rate 78 % of 1884)	1467
263 children younger than 17 months or older than 20 months	1204
36 children whose mothers did not answer the postpartum sadness item	1168

Table 2: Socio-demographic characteristics- Mothers with different levels of postpartum distress (PD)

Socio-demographic characteristic	Low PD N:856		Medium PD N:249		High PD N:63		P values ¹
	n/N	Mean, %	n/N	Mean, %	n/N	Mean, %	
Mother's age, mean	851	32.2	245	31.7	63	31.1	.0940
Older mother (33-48), %	418/851	49.1	100/245	40.8	27/63	42.9	.0570
First-born child, %	352/856	41.1	133/249	53.4	34/63	54.0	.0008
Male child, %	408/856	47.7	142/249	57.0	36/63	57.1	.0178
Mother's country of birth not Sweden, %	131/852	15.4	49/245	20.0	9/63	14.3	.2039
Mother's education elementary or less, %	85/847	10.0	20/248	8.1	4/63	6.3	.4477
Mother' education university, %	383/847	45.2	113/248	45.6	23/63	36.5	.3926
Single mother, %	40/855	4.7	25/249	10.0	10/63	15.9	<.0001

¹ Statistical methods:
Mean: ANOVA. Percentages: X². DF=2.

Table 3: Stress and perception of child behaviour by levels of postpartum distress (PD)- Means, p values and effect sizes for means

Outcomes (low values are favourable)	Means and percentages ¹			Unadjusted analyses: P values ²				Adjusted P values ³	Effect sizes for means ⁴		
	Low PD	Medium PD	High PD	Low-Medium PD DF=1	Medium-High PD DF=1	Low-High PD DF=1	All PD groups DF=2		Low-Medium PD	Medium-High PD	Low-High PD
SPSQ: total	2.37	2.7	2.85	<.0001	0.0477	<.0001	<.0001	<.0001	0.65	0.27	0.91
SPSQ: social isolation	1.99	2.29	2.43	<.0001	0.1689	<.0001	<.0001	<.0001	0.42	0.2	0.68
SPSQ: role restriction	3.36	3.66	3.82	<.0001	0.122	<.0001	<.0001	<.0001	0.4	0.22	0.63
SPSQ: incompetence	2.05	2.42	2.65	<.0001	0.042	<.0001	<.0001	<.0001	0.59	0.31	0.84
SPSQ: spouse relationship	2.06	2.39	2.27	<.0001	0.3655	0.0515	<.0001	<.0001	0.41	-0.14	0.26
SPSQ: health	2.53	2.88	3.08	<.0001	0.0725	<.0001	<.0001	<.0001	0.43	0.26	0.71
Child behaviour											
Difficultness, Bates, means (1-7)	3.51	3.7	3.91	0.0038	0.0934	0.0001	<.0001	0.0068	0.22	0.24	0.49
Child's mobility very/ rather difficult to handle, %	5.8	8.2	17.5	0.1786	0.0296	0.0017	0.0015	0.0282			

¹ Low PD: N=856 (843-853). Medium PD: N=249 (244-249). High PD: N=63. Due to missing values, the numbers varied between different analyses.
² Statistical methods: Student's t test (pairwise comparisons low-medium, medium-high, low-high, DF=1), ANOVAs (comparisons across all PD groups low, medium, high, DF=2), X² and Fisher's exact test (percentages).
³ Adjusted for parity (first-born child vs. others), child gender, marital status (single vs. others). Statistical method: multiple logistic regressions with dichotomised variables, merging medium and high PD into one category. For spouse relationship stress, only mothers with a partner were included, and marital status was not included as a predictor in the logistic regression. N for the spouse relationship stress variable: low PD 806, medium PD 221, high PD 53.
⁴ Cohen's d.

Parenthood stress (questionnaire): Mean scores from the Swedish Parenthood Stress Questionnaire (SPSQ, [19]). The SPSQ gives one total score and five subscales: Social isolation, Role restriction (giving up one's own interests to meet the child's needs), Incompetence, Spouse problems, and Health problems. Scores range from 1 to 5, low scores being favourable.

Mother's perception of child difficultness (questionnaire): Mean score from the Child difficultness scale by Bates et al. Scores range from 1, "low difficultness", to 7 "high difficultness", with 4 as "about average". A second aspect of *mother's perception of difficult behaviour (questionnaire)* was tapped by the item "How do you experience your child's mobility?" (dichotomised into "very or rather difficult to handle" vs. "neither difficult nor easy/rather easy/very easy") [20].

Data analysis

The SAS package, version 9.3, for personal computers was used. Crude differences between the groups were tested for significance with the X² test or Fisher's exact test (percentages) and ANOVAs or Student's t test (means). P values below .05 were considered significant. All observations with missing values were excluded from the computations. The outcome variables were also analysed in multiple logistic regressions controlling for socio-demographic factors that differed significantly across the PD groups, i.e. first-born child, male child, and single mother (Table 2, which gives the frequencies for our larger sample of 1168 and not just for the smaller ones used in our previous studies 15 and 16; n=438 and 352, respectively). In the logistic analyses, all variables were dichotomised, scale variables by

the medians. This means, for instance, that the PD categories medium and high were merged into one, which may seem to contradict what was specific about this study (three degrees of postpartum distress). However, dichotomisation of categories was required in order to get odds ratios from the logistic analyses.

Effect sizes, ES, for means were calculated according to the formula for Cohen's d: $(m1 - m2) / ((sd1 + sd2) / 2)$, where m are means and sd standard deviations. Roughly speaking, an effect size of 1 corresponds to one standard deviation.

Ethical Considerations

The mothers received both written and oral information from the CHC nurse. They were informed that participation was voluntary and that they could withdraw from the study at any time. Mothers were also informed that all information about mother and child would be treated confidentially. The nurses could not take part of the mother's answers. The study was approved by the Research Ethics Committees of the universities involved [Dnr Ups 01-342].

Results

Significantly more depressive than non-depressive mothers had given birth to first-born children and also to male children (Table 2); we have reported these kinds of associations elsewhere [21]. The proportion of single mothers was more than three times higher in the high PD than in the low PD group (15.9 % vs. 4.7 %, p<.0001).

With the exception of spouse relationship stress, continuous gradients were found for all outcomes. Low PD mothers thus

experienced the lowest levels of stress and child difficultness, and found their children's mobility the least difficult to handle, while high PD mothers experienced the highest levels of stress and child difficultness and found their children's mobility the most difficult to handle, with medium PD mothers in between (Table 3). All outcomes showed significant differences according to the unadjusted ANOVA and X^2 comparisons across all three PD levels. The adjusted multiple logistic regressions controlling for first-born child, male child and single mother also showed significant differences for all outcomes. In this latter case, however, the PD categories medium and high were merged into one in order to get a dichotomised variable (see above, data analysis).

The differences between low and medium PD mothers were significant for all outcomes except child mobility (unadjusted analyses). The unadjusted differences between low and high PD mothers were significant for all outcomes except spouse relationship stress. The differences between medium and high PD mothers, however, were significant only for total stress, incompetence stress and difficulty with the child's mobility.

Most effect sizes were small (0.20-0.49). Pairwise comparisons showed the following:

Low-medium PD mothers: there were moderate effect sizes for total stress (0.65) and incompetence stress (0.59). Low-high PD mothers: there were moderate effect sizes for social isolation (0.68), role restriction (0.63) and health stress (0.71). There were large effect sizes for total stress (0.91) and incompetence stress (0.84).

Medium-high PD mothers: the effect sizes were small, ranging from 0.20 to 0.31 (except for spouse relationship stress, where the effect size was in fact negative).

Discussion

Main findings

Our most important finding was that different aspects of maternal stress and perceived difficult child temperament were consistently associated with our simple questionnaire item: "Were you low/sad after delivery?" For most outcomes, the heaviest load fell upon the high PD mothers. This was true for stress (except spouse relationship stress), child difficultness and mothers' difficulty to handle child mobility. It should be remembered that these associations were based on maternal recall of postpartum distress, not on prospective longitudinal measurements.

Despite its simplicity, our questionnaire item about postpartum distress seemed quite valid in identifying distressed mothers at 17-20 months postpartum. It also seemed able to differentiate between different levels of distress in mothers, which was manifested in the significantly higher levels of total stress, incompetence stress and difficulty to handle child mobility in high PD mothers compared with medium PD mothers. About twice as many high PD than medium PD mothers found their child's mobility difficult to handle.

Most effect sizes were small, but total stress and incompetence stress showed moderate effect sizes in comparisons between low and medium PD mothers. The differences between these two groups of mothers can be supposed to have been visible to an experienced eye. Similarly, the effect sizes for social isolation, role restriction and health stress were moderate when comparing low and high PD mothers. Thus, high PD mothers can be expected to have felt isolated, restricted by their maternal responsibilities and experiencing health problems in a perceptible way, if observed by someone knowledgeable. The additional burden in terms of effect sizes on high PD mothers, compared with medium PD mothers, may not have been very large in terms of effect sizes (about 0.20 to 0.25 SD), but was still there and deserved consideration.

Study Limitations

The findings were not strictly representative of the Swedish general population, since the study areas were predominantly

metropolitan, and the response rate was lower among mothers presumed (by their family names) to be of non-Swedish origin (64%) than among mothers supposed to be of Swedish origin (85%, $p < .0001$, calculated on the n value 1944; the analysis of surnames has been reported elsewhere [22]).

Our findings were based on maternal reports. Recall of postpartum sadness at 17-20 months was our only available measure, since general screening for depression was not introduced at the time of the study. The associations found in this study may have been bidirectional, implying both that present recall of postpartum distress could have influenced perceptions of current stress etc., and that present stress may have made mothers more prone to report postpartum symptoms of distress. Perhaps some mothers were generally vulnerable both to sad recalls of their postpartum period and to current feelings of stress. No causal inferences can be drawn from our study.

Ideally, our PD variable should have been a ratio scale. Actually, it was just an ordinal scale. Nevertheless, it was able to differentiate between lower and higher levels of distress. We had no gold standard to verify the mothers' depressive states at childbirth, but there were acceptable associations with stress and child difficultness. This is no proof of validity but may be taken as support of validity. Our item about postpartum sadness has been used on a different material by Kerstis et al. [7]. According to these authors, more mothers and fathers who had felt depressive had EPDS scores >11 than mothers and fathers who said that they had not felt depressive.

Perhaps the most important limitation was that we could not really be sure of whether our item measured postpartum sadness or present distress, or both. It does indeed seem awkward to ask mothers to remember how they felt about one-and-a-half year ago, if we are interested in finding out their current wellbeing. From a clinical point of view, however, this may matter less, since we did catch mothers in potential need of help at about 18 months.

Clinical Implications

We find our results clinically important. It has been argued that depressive mothers may be less capable of taking the child's perspective [23], and that lower self-efficacy may be associated with hostile parenting behaviour [3]. Low self-efficacy can be seen as an aspect of incompetence stress, which seemed to burden the mothers in our present study.

The Swedish Child Health Services are in a good position to identify and support distressed mothers. In principle, every Swedish newborn child receives an early home visit by the child health nurse. Most CHC:s use the EPDS, and 6-8 counselling sessions are recommended for depressive mothers, but seldom in the form of home visits. Massoudi et al. [24] found that nurses working exclusively with child health care were more prone to offer listening visits to depressed mothers than nurses who also worked with other tasks and patients of all ages. In the same vein, Magnusson et al. [25] found that mothers were more satisfied when the child health nurse worked exclusively with children. Even from the point of view of postpartum depression, it seems advisable to organise the child health services on such a specialized basis.

The child health surveillance programme also includes a general nurse visit at 18 months. This seems to be an ideal occasion for asking every mother specifically how she feels and perhaps also how she felt when her child was born. From the findings of the present study and those by Magnusson et al. [16], we suggest that nurses ask some simple question to mothers about their wellbeing at about 18 months, not necessarily the one we have used here. Perhaps a question about need of help could be added, like the one proposed by Arroll et al. [14]. We do not want to say that a question of this kind could or should replace the EPDS, but it might complement it.

To summarize, our main finding was that a simple question, and in fact even one that was based on retrospective recall, was capable of tapping important states of distress in mothers of toddlers. We also found that mothers who said that they felt "very" (not just

“somewhat”) distressed postpartum may be a particularly vulnerable group. We thus strongly recommend that the EPDS should be offered to all recent mothers about 6 weeks postpartum. At about 18 months, the nurse should ask the mother about her present feelings. Even today, of course, nurses are highly aware of maternal stress and needs of support, but time and resources are scarce. Therefore we cannot be convinced that all distressed mothers are routinely picked up at 18 months, so we wish to recommend some simple questioning at the 18 month visit. Perhaps something like: How did you feel postpartum? How do you feel today? Is there something with which you would need help? It will be a matter for future research to find out the most effective wordings of such questions.

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Ethical Standards

The study has been approved by the appropriate ethics committee and has therefore been performed in accordance with the ethical standards laid down in the 1964 Declaration of Helsinki and its later amendments. All persons gave their informed consent prior to their inclusion in the study. Details that might disclose the identity of the subjects under study have been omitted.

Contributor's List

Both authors were responsible for the main content of the manuscript. Author Lagerberg wrote the manuscript and performed the statistical analyses. Author Magnusson was responsible for literature searching, made substantial contributions to the intellectual content of the manuscript and participated in the drafting of the manuscript.

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