

Early postpartum discharge and different follow-up strategies – An explorative study from Norway

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Abstract

Background: In most maternity wards in Norway, early discharge (<48h) is the norm. To monitor newborns' and women's health during the first week after delivery, most maternity wards offer early check-ups, where families return to the hospital (standard care). However, a few municipalities offer home-visits by midwives (domiciliary care), to ensure seamless services for the family.

Aim: The primary aim of this study was to explore if different follow-up strategies were differently associated with maternal depression and breastfeeding habits, six weeks and six months postpartum. The secondary aim was to investigate if families at risk for postpartum depression were included in the home visiting program in the municipality that offered both follow-up strategies.

Method: This study draws on data from the "Little in Norway" (LIN) study, which followed families from pregnancy until the child was 18 months. The present study used data from two different municipalities, where one offered standard care (n=95) and the other domiciliary (n=64) and standard care (n=17). The Edinburg postnatal depression scale (EPDS) was used to measure maternal depression. Breastfeeding habits were measured using a self-reported questionnaire. The Life Stress subscale of the Parenting Stress Index (PSI) was used to identify women at risk for postpartum depression.

Results: There were no differences in maternal depressive symptoms or breastfeeding habits at neither six weeks nor six months postpartum between women that received standard or domiciliary care in the two municipalities. Within the municipality that offered both follow-up strategies a higher number of women scoring high on prenatal Life Stress were included in domiciliary- compared to standard care.

Conclusion: Differential follow-up strategies in the first week after birth did not impact on maternal depression or breastfeeding habits. However, domiciliary care seems to be regarded as supportive and non-stigmatizing for women at risk for postpartum depression.

Keywords: postpartum depression, breastfeeding, adverse life events, domiciliary care, home visits, early discharge, life stress

Introduction

Postnatal care is crucial for maintaining good health in both mothers and infants (1). Initiating breastfeeding, and detecting newborns' and mothers' possible signs of physical or psychological deprivation are vital topics in the first postpartum week. The importance of postnatal care has been incorporated in the WHO's new guidelines, which highlights the significance of professional support the first week after birth (2).

In Norway, the duration of hospital stay after birth has decreased since the 1950's, from several weeks to 3-4 days around the millennium, and down to 8-48 hours at the university hospitals during the last decade, with returns to hospital for ambulant check-up within the first week after birth as standard care. Some municipalities offer domiciliary care instead of ambulant hospital check-ups, fulfilling the domestic guidelines recommendations for home visits and breastfeeding, which state that day three after birth is crucial for monitoring newborns' loss of weight as well as the mothers' supply of milk (2, 3).

Accordingly, a Norwegian study found increased re-admissions to neonatal units due to insufficient breastfeeding after early discharge with ambulant hospital check-up, indicating that this is a vulnerable period with regard to weight loss among newborns` (3). Another Norwegian study also showed that early discharge with ambulant check-up within the first week after birth (standard care) was associated with lack of breastfeeding guidance and a feeling of vulnerability in the mothers (4). As breastfeeding could be a way of reducing maternal stress and enhancing mother-infant bonding (4-6), it may also decrease the risk for postpartum depression (4, 6, 7).

Studies in other European countries show that early discharge with domiciliary follow-up in the first week after birth is safe with regard to physical parameters, breastfeeding and postpartum depression (8-10). In addition, one study from Australia found that domiciliary care in the first week after birth yielded a stronger feeling of security and support, as compared to hospitalized stay for healthy women and newborns (11). Yet, another study found that women vulnerable to postpartum depression, reported lower levels of depressive symptoms four months postpartum with more targeted follow-up after birth, as compared to standard home-care visits. This suggests that early discharge with home-based care the first week after birth is not enough for women at risk for postpartum depression (12).

As previously mentioned, most municipalities in Norway offer early check-up at the hospital in the first week after birth, and only a few municipalities offer early check-up with domiciliary care by midwives (seamless services). The primary aim of this study was to

explore if the two follow-up strategies (standard hospital check-up and domiciliary care) within the first week after birth were differentially associated with maternal depressive symptoms and breastfeeding habits at six weeks and six months postpartum, by comparing women from two different neighbouring municipalities in the western part of Norway (but discharged from the same hospital). The municipality that offered domiciliary care to the families also offered standard care with hospital check-up (freedom of choice). A secondary aim was therefore to investigate if women at risk for postpartum depression, as measured by high life stress during pregnancy, were included in the home visiting program in a smaller subsample from the municipality that offered both follow-up strategies.

Materials and methods

Design and setting

The study draws on data from the “Little in Norway” (LIN) study, which is a longitudinal population study of infant vulnerability and plasticity from pregnancy to 18 months. The study was conducted at different sites throughout Norway, and included 1036 families. The present report is based on data from the families that were recruited from the two municipalities (sites) in the western part of Norway. Figure 1 depicts the two follow-up strategies; standard follow-up including hospital check-ups (standard care), or domiciliary follow-up including a home-visiting program instead of hospital check-ups (domiciliary care) (fig. 1).

Insert figure 1 here

Participants

The mothers were recruited at the first antenatal appointment with their midwife, from September 2011 to November 2012. They had all delivered at the same hospital but were resident in different municipalities. Standard care was therefore similar in the two groups whereas domiciliary care only was given in municipality 1. Women who received domiciliary care in municipality 1 (n=64) were compared to women who received standard care in municipality 2 (n=95) (fig. 2). Furthermore, domiciliary (n=64) and standard care (n=17) was also compared within municipality 1, in order to explore if women at risk for postpartum depression had been detected and included in the domiciliary- compared to the standard care

group. Caesarean section, preterm birth and twins were excluded to make the groups eligible for comparison.

Insert figure 2 here

Data collection

There were ten measuring points in the LIN-study; five before birth (t1-t5) and five after (t6-t10), ranging from gestational age (GA) 16 weeks to 18 months postpartum. Data collection for this study was done at GA 16 (t1) and 36 (t5) in pregnancy, birth (t6) and six weeks (t7) and six months (t8) after birth.

Measures

Edinburgh Postnatal Depression Scale (EPDS) was used to measure the mother's level of depressive symptoms in pregnancy and again at six weeks and six months postpartum. EPDS is an international questionnaire translated to over 60 languages and validated in many countries (13). This study used the validated Norwegian version of Eberhard-Gran et al (14). The EPDS is a screening instrument that includes 10 questions related to the mother's feelings during the last week. Each question is scored on a scale from 0-3 with a potential score between 0-30 (15). Cut-off at 12 gives sensitivity at 86 % and specificity at 78 % (14). Internal consistency was measured using Chronbach's alpha and showed levels between .69 and .85 within both groups.

Breastfeeding habits were reported retrospectively through a self-reported food-frequency questionnaire at six weeks and six months postpartum. This study used the answer to one single question asked at six weeks and six months; Is the child currently getting breast milk? Scores were from 1-4 where 1 was only breast milk, 2 only breast milk and infant formula, 3 no breast milk now, but did get breast milk earlier, and 4 no breast milk. For the present purposes, the original categories were collapsed into 1 "fully breastfed", 2 "partial breastfed" or 3 "not breastfed", due to few responders in the original categories 3 and 4.

Life stress was measured with the Life Stress (LS) subscale of the Parenting Stress Index (PSI). It consists of 22 questions measuring external stressors, such as death within family, unemployment, poverty and divorce (17). Each answer is given as yes or no, where "no" is 0

and “yes” yields a score between 2-8 depending on burden of the strain. The continuous variable of life stress was transformed to a dichotomous variable with cut-off at 16, since score over 16 indicated a need for extra follow-up (17).

Analyses

This study used Statistical Package for the Social Sciences (SPSS) version 21 for all statistical analyses. The file was checked for errors and missing data. Breastfeeding habits were dichotomized by collapsing categories 2 and 3 (partial and no breastfeeding) and compared with category 1 (fully breastfeeding) using chi-square test. Independent t-tests on the data at six weeks and six months postpartum were used to examine a possible association between follow-up strategies and maternal depressive symptoms (EPDS scores). Paired sample t-tests were used to examine changes in maternal EPDS scores from six weeks to six months postpartum within each follow-up strategy in municipality 1 and 2. Life stress were dichotomized into high-and low based on Life Stress ≥ 16 , and chi-square test was used to explore if a higher number of women scoring high on prenatal life stress were included in the domiciliary care within the municipality that offered both follow-up strategy (municipality 1).

Ethical considerations

The LIN-study has been approved in the Regional Ethics Committee of southeast Norway (REK), reference number 2011/560.

Results

Subjects

Descriptive statistics of the sample is included in table 1. The women had an average age of 29 years. Relationship status, number of children and education levels did not differ statistically between the two groups, neither did they differ in type of delivery, EPDS score or life stress. The exception was a higher intake of prescribed drugs and nicotine in the municipality who offered domiciliary care. Participants reported that prescribed drugs were antibiotics, antihistamines, vitamins and one prescription for psychopharmaceuticals.

Insert table 1 here

Breastfeeding

There were no significant differences between standard and domiciliary care regarding breastfeeding habits at the two time points (table 2). In addition, the overall percentages for breastfeeding (partial or fully) were 91 and 97 at six weeks and 81 and 77 at six months in the domiciliary care- and standard care group, respectively (data not shown).

Insert table 2 here

Missing data were substantial in the standard care group, with 55% missing at six weeks and 19% at six months. Only 13% and 6% were missing at six weeks and six months in the domiciliary care group.

Postpartum depression

There were no differences between the families who received standard care and domiciliary care regarding mothers' level of depressive symptoms at six weeks and six months (table 3).

Insert table 3 here

When comparing the mothers' EPDS score from six weeks to six months postpartum, the mothers that received standard care showed a significant decrease in level of depressive symptoms ($p < .01$). This was not found in the group of mothers that received domiciliary care, but the significance level was borderline ($p = .08$) (table 4).

Insert table 4 here

Families at risk for postpartum depression

A significantly higher number of women coring high on prenatal life stress was included in the domiciliary compered to the standard care group in municipality 1, witch offered both follow-up strategies ($p < .05$) (Table 5).

Insert table 5 here

A further comparison of the two groups within municipality 1 revealed that the domiciliary group consisted of significantly more first-time mothers ($p < .05$). There were no other differences between the two groups.

Discussion

The results of the present study revealed no differences between the groups who received domiciliary- or standard care with respect to breastfeeding habits or level of maternal depressive symptoms, at six weeks and six months postpartum. However, there was a slight decrease in EPDS score from six weeks to six months in both groups. The explorative analyses in the municipality (municipality 1) that offered domiciliary and standard care, revealed that number of women scoring high on prenatal life stress were included in domiciliary- compared to standard care.

The finding that there was no difference in the frequencies of breastfeeding at six weeks and six months postpartum between the two groups, suggest that domiciliary care in the first week after birth is not superior to standard care, where the families return to the hospital for check-up. Both groups showed very high levels of fully/partial breastfeeding at six weeks (domiciliary 97%/standard 91 %) and six months (standard 81%/domiciliary 77 %), suggesting that most women breastfeed their infants independently of the follow-up strategy, in the first and probably most vulnerable period after birth. However, missingness was substantial in the standard care group (55 and 19 %) compared to the domiciliary care group (13 and 6 %), which limits the generalizability of this finding. There could be a number of reasons for missing data, especially at the six weeks time-point, such as this being a stress-full time due to closeness to birth and with regard to filling out a time-consuming electronic questionnaire. Still, as there were substantial differences in missing data between the two groups, it is also possible that the mothers who did not breastfeed declined to answer. In high-income countries like Norway, breastfeeding is associated with high socioeconomic status, as opposed to low-income countries where the trend is reverse (18). To inform and encourage women to breastfeed, substantial governmental work over decades has strengthened both the status and frequency of breastfeeding (19). One could therefore assume that part of the missing in ordinary follow-up is due to women not reporting their lack of breastfeeding because of social norms and sense of personal failure.

The lack of difference between the two groups with respect to the level of maternal depressive symptoms postpartum is supported by findings from other countries (8-10). Other studies that have compared home-based care with hospital stay, showed no increase in depressive symptoms in spite of short hospitalisation after birth. Even if the present study did not compare early discharge with hospital stay, it supports the finding that early discharge, with both domiciliary and standard care, is safe when it comes to maternal postpartum depression.

That both groups decreased in self-reported depressive symptoms from six weeks to six months indicates that there is a natural decrease in postpartum maternal symptoms from birth irrespective of follow-up strategies in the first week after birth. This is consistent with a systematic review, which found a peak around 2-3 months postpartum (20). Studies have also shown that more vulnerable women seem to profit from targeted home visit program as they report lower levels of depressive symptoms after intervention, as compared to controls (11). Thus, it is possible that seamless services with domiciliary care by midwives within the first week after birth, might be especially important for women at risk for postpartum depression.

It is noteworthy that the sample in domiciliary care comprised more women with high scores of prenatal life stress. Several studies confirm that there is a connection between stressful life events and depression after birth (21, 22). One might assume that the depression score in the domiciliary care group could have been higher if this group had received standard care, as the domiciliary program secure transition to the public health nurse with a note on both physical and psychological wellbeing. Home visits within the first week after delivery might also be beneficial in detecting incomplete social support, poverty and lack of parental skills. Early detection could lead to proper follow-up by municipal support systems, reducing unnecessary strain and development issues among newborns and their families.

The second aim of this study was to explore data in connection to families at risk for postpartum depression in the municipality who offered both domiciliary and standard care (municipality 1). The result showed that all women who scored high on prenatal life stress ($LS > 16$) had been included in the domiciliary care group. Even if the domiciliary follow-up inclusions did not select families based on mental health or vulnerability, the results suggest that domiciliary care by midwife the first week after birth is regarded as safe and non-stigmatizing among more vulnerable women at risk for postpartum depression. Further analyses of this sample also revealed that there were more primiparae in the domiciliary group compared to the standard care group, and first time parents might be especially vulnerable due to new responsibilities and challenges (23). Domiciliary care ensures direct referral to hospital

or other medical services regarding postpartum related issues for mothers and newborns within the first week. After the first week transmission to public health nurse is ensured, as opposed to standard care where referral is delayed. This closes the gap, pointed out by national authorities. Unfortunately, many families get support and follow-up too late due to breaches in transition from hospital to local care (24).

Strengths and Limitation

This study's longitudinal design is one of its strength as it allowed us to look at several time points and to compare the groups before the intervention were carried out. There were relatively few missing data from pregnancy to six weeks and six months postpartum. One exception was breastfeeding in standard care group. The comparisons of the groups before birth showed non-significant differences with regard to sociodemographic variables except for nicotine and drug use, which allow us to assume that they were comparable.

One important limitation is that the two main groups were recruited from two different municipalities, whose organisation might be different. Ideally it would have strengthened this study to compare the different follow-up routines within the same municipality, but this was not possible as too few respondents in the municipality that offered both standard and domiciliary care were included in the standard care group. However, both municipalities were connected to the same hospital with the same discharge routines, which might offset some of these limitations. It is also a limitation that the data collection was not designed especially for this study.

Conclusion

Different follow-up strategies in the first week after birth do not seem to be related to maternal depression or breastfeeding frequency six weeks or six months after birth. However, domiciliary care by midwives after birth seems to be supportive and non-stigmatizing for more vulnerable women at risk for postpartum depression. As this was a small study with no randomized groups, it should be replicated before any firm conclusions can be drawn.

Declaration of conflicting interests

We declare no conflict of interest.

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