Events after Stillbirth in Relation to Maternal Depressive Symptoms: A Brief Report

Pamela J. Surkan, PhD, ScD, Ingela Rädestad, PhD, Sven Cnattingius, MD, PhD, Gunnar Steineck, MD, PhD, and Paul W. Dickman, PhD

ABSTRACT: Background: Actions taken after a stillbirth can affect long-term psychological morbidity. Our objective was to study how infant bonding and maternal actions after stillbirth are associated with ensuing depressive symptoms. Methods: Using the population-based Swedish Medical Birth Register, we identified all 380 Swedish-speaking women who gave birth to singleton stillborn infants in Sweden in 1991. Of these, 314 (83%) completed a postal questionnaire 3 years after the stillbirth. Items included actions taken to bond with the baby and demographics. The association between care-related factors and later maternal depressive symptoms was quantified using relative risks estimated using multivariable regression. Results: We observed an almost sevenfold increased risk of depressive symptoms for mothers who reported not being with their babies as long as they wished (adjusted risk ratio [RR] 6.9, 95% CI 2.4–19.8). Compared with women who became pregnant again within 6 months, those with no later pregnancy were at higher risk of depressive symptoms (adjusted RR 2.8, 95% CI 0.9–8.4). In addition, compared with women who experienced a stillbirth in their first pregnancy, stillbirth occurring with an infant who was third in the birth order was related to a twofold risk of elevated depressive symptoms (adjusted RR 2.2, 95% CI 0.8–6.4). Furthermore, stillbirth occurring in a fourth or later pregnancy was associated with an almost sevenfold risk of depressive symptomatology (adjusted RR 6.7, 95% CI 2.2–20.5). No evidence of an association was found between other care-related actions and subsequent maternal depressive symptoms. Conclusions: Our results suggest that a mother being with the stillborn baby for as long as they wished and the birth order of the stillbirth may influence her later depressive symptomatology. Compared with mothers who became pregnant again within 6 months, those who did not have a subsequent pregnancy were at higher risk of depressive symptoms at 3 years’ follow-up. (BIRTH 35:2 June 2008)

Key words: stillbirth, depression, mental health, mother-child relations, maternal-fetal relations
Events surrounding a mother’s experience of stillbirth can influence the bereavement process (1,2). Over the past several decades, clinical practice guidelines have changed from treating stillbirth as an insignificant event (3) to recognizing that the needs of surviving family members after a child’s death are something to be addressed by medical care (4). Parents may regret that they did not take action to achieve closure after the death of a child (5).

An early randomized study found a lower prevalence of psychological complications 6 months later among mothers who were supported, including having been encouraged to have contact with their stillborn baby, when compared with those who received no such support (6). Qualitative data strongly indicate that not being with the baby for a long enough time can be distressing (7,8). Despite this evidence, other research has called into question the benefits of having contact with the baby after birth. Hughes et al argue that behaviors promoting contact with stillborn infants are associated with more severe later anxiety and depression (9). Thus, some norms for the care of mothers after experiencing stillbirth have recently been called into question.

Our objective was to assess one aspect of mental health related to bereavement, namely, maternal depressive symptoms evaluated 3 years after the experience of stillbirth. We explored if actions related to bonding with the child after the stillbirth are associated with later depressive symptoms.

### Methods

The population-based Swedish Medical Birth Register was used to identify 380 Swedish-speaking women who had given birth to a singleton stillborn infant after at least 28 weeks of gestation in 1991. Following a pilot study with 34 mothers (10), postal questionnaires were sent to consenting women in October 1994. Details of the study design and population are not provided in the image.
The study was approved by the ethics committee at Karolinska Institutet in Stockholm, Sweden. We used the Center for Epidemiological Studies Depression Scale (CES-D), a standard valid and reliable measure (11–13). Scores above the 90th percentile were used to indicate frequent depression-related symptoms, following a previously determined cut-off (2). When more than 3 of the 20 CES-D questions were unanswered, these observations were excluded from the analysis. Items related to bonding with the stillborn infant focused on maternal actions, such as seeing, holding, kissing, dressing, or caressing the infant; keeping tokens of remembrance; making funeral arrangements (e.g., if a ceremony was held); and spending sufficient time with the infant. Questions about procedures at the hospital included who took the baby away, whether milk production was stopped, length of time in the hospital, and if the mother stated that she met with too many staff members. Finally, information was gathered about whether another pregnancy occurred between the time of the stillbirth and our survey, how much time had elapsed before the subsequent pregnancy, and about the birth order of the stillborn infant.

Unadjusted risk ratios (RR, ratios of proportions) were estimated between potential explanatory variables and later maternal depressive symptoms. RR and 95 percent confidence intervals were estimated using a generalized linear model with binomial error structure and logarithmic link function (14) using PROC GENMOD in SAS (15). After adjustment for maternal education, employment, and marital status, the estimates became unstable when controlling for more than two covariates. Therefore, this estimate is adjusted for only maternal education and marital status.

Table 1. Continued

<table>
<thead>
<tr>
<th>Questionnaire Item</th>
<th>Response Category</th>
<th>Number/Total Number (%)</th>
<th>Unadjusted Risk Ratio (95% CI)</th>
<th>Adjusted Risk Ratioa (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name-giving ceremony for the baby</td>
<td>No</td>
<td>23/209 (11)</td>
<td>1.3 (0.6–2.9)</td>
<td>1.2 (0.6–2.7)</td>
</tr>
<tr>
<td>Had funeral ceremony or own ritual</td>
<td>Yes</td>
<td>7/82 (9)</td>
<td>Reference</td>
<td>Reference</td>
</tr>
<tr>
<td>Staff who assisted at the delivery</td>
<td>Doctor and midwife</td>
<td>7/72 (10)</td>
<td>0.9 (0.4–2.1)</td>
<td>0.6 (0.2–1.7)</td>
</tr>
<tr>
<td>Took bromocriptined to stop milk production</td>
<td>No</td>
<td>1/9 (11)</td>
<td>1.1 (0.2–6.9)</td>
<td>2.5 (0.2–37.1)</td>
</tr>
<tr>
<td>Time stayed in hospital after delivery</td>
<td>&gt; 3 days</td>
<td>13/72 (18)</td>
<td>2.6 (1.2–5.8)</td>
<td>1.9 (0.5–6.6)</td>
</tr>
<tr>
<td>Place of stay in hospital after delivery</td>
<td>Delivery ward or alternative birth center</td>
<td>7/56 (13)</td>
<td>1.5 (0.6–3.6)</td>
<td>1.5 (0.6–3.5)</td>
</tr>
<tr>
<td>Met with too many people in hospital</td>
<td>Yes</td>
<td>6/41 (15)</td>
<td>1.5 (0.7–3.5)</td>
<td>1.2 (0.4–3.3)</td>
</tr>
<tr>
<td>Experienced difficulty in becoming pregnant</td>
<td>Much/a lot</td>
<td>9/36 (25)</td>
<td>3.1 (1.6–6.2)</td>
<td>4.3 (0.6–29.2)</td>
</tr>
<tr>
<td>Subsequent pregnancy</td>
<td>No later pregnancy</td>
<td>7/37 (19)</td>
<td>2.3 (1.0–5.0)</td>
<td>1.2 (0.5–2.6)</td>
</tr>
<tr>
<td>Timing of subsequent pregnancy</td>
<td>No later pregnancy</td>
<td>7/37 (19)</td>
<td>2.8 (1.1–7.0)</td>
<td>2.8 (0.9–8.4)</td>
</tr>
<tr>
<td>Birth order of stillborn child</td>
<td>&gt; 3rd</td>
<td>5/20 (25)</td>
<td>4.6 (1.6–13.1)</td>
<td>6.7 (2.2–20.5)</td>
</tr>
<tr>
<td></td>
<td>3rd</td>
<td>6/47 (13)</td>
<td>2.4 (0.9–6.8)</td>
<td>2.2 (0.8–6.4)</td>
</tr>
<tr>
<td></td>
<td>2nd</td>
<td>10/92 (11)</td>
<td>2.0 (0.8–5.2)</td>
<td>1.4 (0.5–3.6)</td>
</tr>
<tr>
<td></td>
<td>1st</td>
<td>7/131 (5)</td>
<td>Reference</td>
<td>Reference</td>
</tr>
</tbody>
</table>

aAdjusted for maternal education, employment, and marital status.

bDue to sparse numbers in cells, estimates became unstable when controlling for more than two covariates. Therefore, this estimate is adjusted for only maternal education and marital status.

cToken of remembrances include having a lock of hair, baby clothes, name or identification bracelet, copy of medical records from prenatal care or delivery, foot or handprint, ultrasound picture, or other token.

dA trade name for bromocriptine is Pravidel.
eBecause many women indicated staying in more than one location, those who were counted as staying in the gynecological ward were only those who did not indicate spending any time in the delivery ward, maternity ward, or alternative birth center.
for maternal education, employment, and marital status, we used multivariable models to estimate risk ratios of maternal depressive symptoms associated with actions taken related to management of the stillbirth.

Results

Associations between factors related to care and risks of maternal depressive symptoms are shown in Table 1. Thirty-two percent of women who were not with the stillborn baby as long after birth as they wished showed depressive symptoms, compared with only 10 percent of women who were with the baby as much as desired. Not being with the baby as long as the mother wished was highly associated with depressive symptoms 3 years later (adjusted RR 6.9, 95% CI 2.4–19.8). If a woman had no other pregnancy between the time of the stillbirth and participation in the study, this factor was associated with an almost threefold higher risk of depressive symptoms (adjusted RR 2.8, 95% CI 0.9–8.4), compared with those who became pregnant again within 6 months. If the stillborn baby was the third child, the mother was at a 2.2 times (95% CI 0.8–6.4) higher risk of depressive symptoms, whereas if he or she was the fourth or later child, this risk was elevated to 6.7 (95% CI 2.2–20.5), compared with those who had a stillbirth in a first pregnancy. No other parental action or event after stillbirth that we examined appeared to be relevant to subsequent maternal depressive symptoms.

Discussion

It is generally accepted that most parents want contact with their stillborn baby (8,16). This contact after delivery, including saving tokens of remembrance, has become the standard of care across a wide range of health care systems (17,18). Our results indicate a strong association between mothers who expressed a wish to have spent more time with their baby and subsequent depressive symptoms, which supported previous analyses of our cohort that showed a higher risk of subsequent anxiety among mothers who were not with their infants as long as they wished (2). Notably, as in the present study that examined later maternal depressive symptoms, our previous study found no significant differences in anxiety between mothers who had seen or held their infants and those who had not (2).

We found an almost sevenfold risk of later depressive symptoms for mothers expressing the wish to have spent more time with their stillborn child (after adjusting for education and maternal marital status). Some caution is warranted in interpreting these results. Unfortunately, we do not have information about how the staff actually acted, whether mothers expressed the wish to be with the baby longer while they were in the hospital, or if their memories changed over time. In addition, we lack information about some potential intermediate events that could influence maternal depressive symptoms, such as counseling occurring in the years between the birth and the assessment of depressive symptoms. Although having a subsequent child and social support in the intervening years appear to be important (submitted manuscript), with respect to the mother being with the stillborn child as long as she wished, they can be regarded as mediating variables.

Our results indicate that birth order of the stillbirth may influence a mother’s depressive symptoms. Women for whom the stillbirth was a fourth or later pregnancy were at an almost sevenfold higher risk of depressive symptoms. We are not aware of other studies that have examined the role of birth order on maternal depression after stillbirth. Our finding that mothers who did not have a subsequent pregnancy were at higher risk of depressive symptoms at 3 years’ follow-up, compared with those who became pregnant again within 6 months, is consistent with the idea that increased time between a loss and subsequent conception is related to greater maternal grief (19) and that thinking about the stillbirth is easier after a subsequent baby (20). A previous analysis of our data showed that later maternal anxiety after stillbirth was not statistically significantly associated with whether or not the mother had been pregnant again (2). Others have reported that women with a shorter period between the stillbirth and the next pregnancy were more depressed a year after the event (21,22). Given these inconsistencies in the literature, more research is needed to clarify these relationships.

Strengths of our study include the fact that it was population based and had high participation rates, both of which are likely to minimize problems due to selection. Postal questionnaires also eliminate investigator-induced bias during the data collection. Although we examined many associations and only found very few that were statistically significant, the low statistical power due to small sample size would be expected to reduce our ability to detect true associations between actions related to the management of stillbirth and subsequent maternal depressive symptoms. A potential source of bias may be that mothers experiencing greater difficulty in accepting the loss or who have depression for other reasons (e.g., women with unresolved grief) may be more likely to report that they had desired more time with their infants at the time of the delivery. With respect to bias from
recall, a small number of the parental action variables we examined, aside from desire to spend time with the baby, showed a statistically significant association with subsequent depressive symptoms. If this association were influenced by unresolved grief that affected recall, one would expect it to affect many associations. It is highly unlikely that a mother would erroneously recall birth order or whether or not she gave birth to another child because of the nature and salience of these events. Of the other events that are more likely to be recalled erroneously, only recall of wishing to be with the child was significantly related to depressive symptoms. We believe that this finding, together with the magnitude of the association we observed, suggests that it also deserves attention despite the limitations of our study.

Conclusions

Our study suggests that several factors after stillbirth may be related to maternal depressive symptoms at 3 years’ follow-up. They include the mother not being with the baby as long as desired, later birth order of the stillborn baby, and no subsequent pregnancy during the first 6 months after the event.

Acknowledgment

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References