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Comparison of prevalence of depression in mothers of twins and mothers of singletons

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Abstract

Objective—To determine whether the apparent additional and exceptional stresses associated with bearing and parenting twins affect the emotional wellbeing of mothers.

Setting—Great Britain, 1970-5.

Design—Cohort study of 13 135 children born between 4 April and 11 April 1970. Mothers of all children, both singletons and twins, were interviewed by health visitors (providing demographic data) and completed a self report measure of emotional wellbeing (the Rutter malaise inventory) when the child was 5 years of age. The malaise scores of mothers of twins were compared with those of all mothers of singletons and then with those of mothers categorised by the age spacing of their children (only one child, widely spaced, or closely spaced), taking account of maternal age, social class, and whether the study child had a disability, by using logistic regression.

Subjects—139 mothers of twins—122 pairs of twins and 17 twins whose cotwin had died—and 12 573 controls, who were mothers of singletons.

Results—A significantly higher proportion of mothers of twins at 5 years had malaise scores indicative of depression than mothers of singletons at the same age. Mothers who had borne twins, one of whom had subsequently died, had the highest malaise scores and were three times more likely than mothers of singletons to experience depression. Both mothers of twin pairs and mothers of singletons closely spaced in age were at significantly higher risk of experiencing depression than mothers of children widely spaced in age or mothers of only one child ($p < 0.0001$). Odds ratios indicated that the risk of depression in mothers of twins was higher than that in mothers of closely spaced singletons.

Conclusion—Mothers of twins are more likely to experience depression. This suggests a relation between the additional and exceptional stresses that twins present and the mother's emotional wellbeing.

Introduction

The role of stressors in increasing vulnerability to depression is well recorded. Life events (for example, death, illness, and separation) and stressful life circumstances (such as poverty, unemployment, disability, and marital discord) have been shown to be associated with the onset and maintenance of depressive states.^{1,7} Among mothers, additionally, serious doubts about having the child,⁸ obstetric problems,⁹ and characteristics of the infant^{10,11} have been found to relate to the onset of depression.

Mothers of twins are particularly likely to be

vulnerable to depression. The birth, pregnancy, and care of twins presents a series of life events and circumstances that are somewhat different from and typically more stressful than those experienced by mothers of singletons. Greater psychological conflict among mothers expecting a multiple birth has been documented. In addition to the feelings of ambivalence experienced by most mothers on confirmation of their pregnancy,¹² these mothers experience conflicts relating to the extra financial, care, and health burdens of bearing twins.¹³⁻¹⁶ Though a sense of pride in being "exceptional" is often reported by these mothers, ambivalence, shock, depression, and anger on learning of a multiple pregnancy have been found to be universal.¹⁶⁻¹⁸

For mothers of twins the pregnancy may be more physically and emotionally stressful than a singleton pregnancy. Bodily discomfort is exacerbated, with greater feelings of heaviness occurring at an earlier stage in pregnancy. Increased risk of obstetric problems such as preterm labour, fetal growth retardation, and proteinuric pre-eclampsia are associated with multiple births,^{15,19-22} and as a consequence more frequent monitoring of the mother and fetus and obstetric interventions are likely. Though the impact of obstetric interventions on the emotional wellbeing of the mother has not been widely investigated, recent studies suggest that some interventions raise anxiety.²³

Associated with the increased obstetric risk is a poorer outcome of twin pregnancies with regard to admission to special care, congenital abnormalities, and perinatal mortality.²⁴ These are all great sources of stress that have long lasting effects on the parent. The death of one of the twins, in particular, has been found to have a long term impact on the emotional wellbeing of the mother.^{19,25}

Though there are few systematic studies, the financial and care burden associated with twins is commonly identified as a source of stress. In the early months there may be difficulties in coping with the often unsynchronised sleeping, feeding, and crying patterns of the two infants; fatigue and exhaustion are common. The logistics of taking two young children out often means that the mother remains at home, and this results in her isolation.^{26,27} Feeling of guilt associated with the mother's inability to give adequate and equal attention to both children are also common.^{13,15,21,28,29} These feelings are further exacerbated if there are other children who also demand the mother's attention and care.¹⁵ The incidence of child abuse has been found to be raised in families of twins, perhaps reflecting these stresses.^{17,32,33} There is some suggestion, too, that the advent of twins may place a strain on the marital relationship.¹⁵

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Two studies have associated multiple birth with the emotional wellbeing of the mother. Powell conducted a study of 61 mothers of first born twins.²⁹ He found that in the first year of motherhood these mothers reported more symptoms of stress characterised by a predominance of anxiety and fatigue than matched controls, who were mothers of singletons. Haigh and Wilkinson²⁷ in a study of 84 sets of twins found no differences in scores on the Leeds anxiety and depression questionnaire³⁰ between mothers of twins and random or matched controls at three weeks post partum. Subsequent measures at three and six months post partum, however, disclosed a trend in which the proportion of mothers of twins experiencing depression and anxiety increased while that of controls decreased. They suggest that the stress experienced by mothers of twins is related to the number of children for whom the mother has to care rather than to the twinning itself. Neither this study nor that of Powell, however, assessed the independent effects of twinning with other stress factors statistically controlled. In the present study we analysed the 1970 child health and education study birth cohort, in which information on emotional wellbeing was available for 139 mothers of twins: 122 pairs of twins and 17 twins whose cotwin had died.³¹ We used multivariate analyses to assess the independent effect of twinning and other pertinent factors on the emotional wellbeing of the mother.

Methods

Information concerning 13 135 (80%) of surviving children from the birth cohort of the child health and education study was collected at the age of 5 years.³¹ A rate of attrition of 20% was due to failure to trace the children (13%) and non-response (7%). The mother was asked to complete a questionnaire, which included the 24 item Rutter malaise scale.³⁴ This asked the mother to indicate the presence or absence of several symptoms of mood and psychosomatic disorder. The maximum possible score was thus 24 and the minimum zero. The scale is based on the 196 item Cornell medical index of health questionnaire,³⁵ which has been found to be a satisfactory predictor of emotional disturbance in adults. On the malaise scale a score of ≥ 7 is predictive of clinical depression.^{34,37} We therefore examined the malaise score as a dichotomous variable with a cut off point of >6 . Other variables used in the analyses were: the mother's age at the birth of the study child or children (under 20, 20-24, 25-29, or ≥ 30); number of other children living in the household (none, one, two, or three or more); social class based on the occupation of the father figure resident in the household by the registrar general's classification of

1970 (non-manual I, II, or III, manual III or IV/V, or no father figure present); child's state of health (no handicap or disability, or minor disability, or moderate or severe disability); status of the study child or children (singleton, twin pair, or twin whose cotwin died); and family status of child or children (only child, child with widely spaced sibling(s) (≥ 2 years), child with closely spaced sibling(s) (<2 years), or a twin pair).

Statistical methods—For analysis of the malaise score we entered the variables of interest into a logistic regression analysis by using the biomedical programs data package. In the case of the disability variable mothers of pairs of twins were attributed the highest disability score from either of the pair. In one of two series of analyses the independent variables relating to the number of children in the household and the birth status of the study child or children were entered; in the other the variable relating to spacing of children's ages was used. The three variables could not be entered into the same regression because they represented different but largely overlapping means of explaining the variation. The first analysis pertains to the effect of twinning itself and includes those mothers who had borne twins, of whom one had died, as a separate group, while the second pertains to child care burden associated with spacing of children, with pairs of twins representing the closest spacing group, and excludes mothers of a twin without a cotwin.

Results

Table I shows the unadjusted relations between malaise scores and independent variables for mothers of both twins and singletons. Strong trends, in which the proportion of mothers with malaise scores >6 increased with lower social class, a larger number of children in the household, and presence of disability in the study child, were evident in mothers of singletons. In mothers of twins the trends were less reliable owing to smaller numbers. The youngest group of mothers of singletons, all of whom were aged less than 20 at the birth of the study child, had a considerably higher proportion of scores indicative of depression than any other age group. Table II shows that mothers of twins were more likely to be depressed than mothers of singletons (proportions with score >6 , 23.9% and 34.4% respectively), and those women who had borne twins, one of whom had died, had a still higher proportion with malaise scores above the threshold indicative of depression (52.9%). A trend in which malaise scores increased with closer age spacing between children was also evident.

Tables III and IV give the results of the logistic regressions. In these analyses all variables entered were

TABLE I—Median (range) malaise scores and proportion with scores >6 by maternal variables for mothers of twins and singletons

Variable	Singletons			Twins		
	No of mothers*	Median (interquartile range) score	Proportion (%) with score >6	No of mothers†	Median (interquartile range) score	Proportion (%) with score >6
Maternal age:						
<20	1079	5 (3-8)	35.1	4	5 (3-6)	25.0
20-24	4478	4 (2-6)	23.9	36	4 (3-7)	33.3
25-29	3915	3 (1-6)	21.0	47	5 (2-9)	38.3
≥ 30	2958	4 (2-6)	23.4	35	3 (2-8)	31.4
Social class of partner:						
Non-manual	4196	3 (1-5)	14.7	37	4 (2-7)	32.4
III manual	5535	4 (2-7)	26.0	54	5 (3-9)	38.9
IV and V	2159	4 (2-8)	31.5	26	3 (2-6)	23.1
No partner	636	5 (2-9)	39.9	5	7 (4-13)	60.0
No of other children in household:						
0	1307	4 (2-6)	22.5	28	4 (2-7)	28.6
1	6216	3 (1-6)	20.3	36	4 (2-8)	33.3
2	3092	4 (2-7)	22.5	34	4 (2-7)	32.4
≥ 3	1956	5 (2-8)	33.3	24	6 (3-8)	45.8
Disability in study child:						
None	11 129	4 (2-6)	23.0	100	4 (2-8)	35.0
Minor	382	4 (2-7)	32.8	8	2 (1-6)	25.0
Moderate to severe	423	5 (2-8)	36.7	11	5 (2-7)	27.3

*Data were missing for some mothers for each variable.

†Data on disability were missing for three mothers.

TABLE II—Median (range) malaise scores and proportion of scores >6 for all mothers by birth status and family status of study child or children

Variable	No of mothers	Median (interquartile range) score	Proportion (%) with score >6
Status of study child or children:			
Singleton	12 573	4 (2-6)	23.9
One of a twin pair	122	4 (2-8)	34.4
Twin whose cotwin died	17	7 (1-9)	52.9
Family status*:			
Only child	1 307	4 (2-6)	22.5
With widely spaced sibling(s)	8 608	3 (2-6)	22.5
With closely spaced sibling(s)	2 656	4 (2-7)	28.8
Twin pair	122	4 (2-8)	34.4

*Data were missing for some mothers.

TABLE III—Results of logistic regression analysis on proportions of malaise scores >6 for all mothers (n=11 889) with number of children in household and birth status of study child or children as independent variables

Variable	Odds ratio	95% Confidence interval	χ^2
Maternal age:			
<20	1.8	1.5 to 2.0	
20-24	1.1	1.0 to 1.2	
25-29†	1.0		
≥30	1.0	0.9 to 1.1	51.1*
Social class of partner:			
Non-manual†	1.0		
III manual	1.8	1.6 to 2.0	
IV and V	2.2	2.0 to 2.5	
No partner	3.2	2.6 to 3.8	223.17*
No of other children in household:			
0†	1.0		
1	1.0	0.9 to 1.2	
2	1.3	1.1 to 1.5	
≥3	1.7	1.5 to 2.1	83.6*
Disability in study child:			
None†	1.0		
Minor	1.6	1.3 to 2.0	
Moderate to severe	1.7	1.3 to 2.0	35.8*
Status of study child or children:			
Singleton†	1.0		
Twin pair	1.6	1.1 to 2.3	
Twin whose cotwin died	3.0	1.1 to 8.1	9.0**

*p<0.0001; **p<0.01.

†Reference group.

TABLE IV—Results of logistic regression on proportions with malaise scores of >6 for mothers of twins and singletons (n=11 872) with family status of study child or children as independent variable

Variable	Odds ratio	95% Confidence interval	χ^2
Maternal age:			
<20	1.5	1.3 to 1.8	
20-24	1.0	0.9 to 1.2	
25-29†	1.0		
≥30	1.1	1.0 to 1.2	30.7*
Social class of partner:			
Non-manual†	1.0		
III manual	1.9	1.7 to 2.1	
IV and V	2.4	2.8 to 4.2	
No partner	3.5	2.8 to 4.2	279.3*
Disability in study child:			
None†	1.0		
Minor	1.6	1.3 to 2.0	
Moderate to severe	1.7	1.3 to 2.1	37.8*
Family status:			
Only child†	1.0		
With widely spaced sibling(s)	1.1	0.97 to 1.3	
With closely spaced sibling(s)	1.4	1.2 to 1.6	
Twin pair	1.8	1.3 to 2.0	22.5*

*p<0.0001.

†Reference group.

Mothers of twins, one of whom had died (n=17) are excluded from the analysis.

found to predict depression (maternal malaise score >6). Maternal youth, social class (particularly being an unsupported mother), number of children in the household, and disability in the study child were all found to predict independently high maternal malaise.

Independent of these variables, presence of a twin was found to be predictive of depression (table III); mothers who had borne twins, one of whom had died, were particularly vulnerable—odds ratios indicated that these mothers were three times more likely to experience depression than mothers of singletons. In the second analysis (table IV), in which the family

status of the study child or children was the variable, mothers of pairs of twins were significantly more depressed than mothers of widely spaced singletons or only one child. Odds ratios indicated an inverse linear relation between the age spacing of children and incidence of depression. In comparison with mothers with closely spaced children, mothers of twins were even more likely to experience depression, though this finding was not significant.

Discussion

Our results suggest that the emotional wellbeing of mothers of twins was poor relative to that of mothers of singletons. This effect was independent of social factors (social class and being without a partner); demographic factors (maternal age and number of children in the household); and the presence of disability in either child, though there is a greater risk of disability among twins.

One explanation for the raised malaise scores among mothers of twins is the greater childcare burden twins present to the parent. Indeed, this is the most common contention in published work on twins. Our data provide support for these conjectures. The number of children in the household, closer age spacing between children, and twinning were all associated with maternal malaise. These associations were, however, mutually independent. Thus the conclusion drawn by Haigh and Wilkinson that it is the number of children and not twinning that is the source of stress to the mother²⁷ is not supported in the present paper. The factor that emerged as important in our analyses was the age spacing between children. Both mothers of closely spaced singletons and mothers of twins were at significantly greater risk of depression. The impact was greatest for mothers of twins. It would seem that the care burden of twins and closely spaced siblings is independent of the number of children. The simultaneous demands of two children, the difficulties of mobility, and, possibly, the additional financial burden they pose are stresses shared by mothers of twins and closely spaced siblings.

Death of an infant and the bereavement that follows are unique in the case of twins.^{19,25} When there is a surviving twin the mother has both the demands of a baby during bereavement and a reminder of the baby she has lost.²⁵ Additionally, as the mother still has a baby the need for sympathy and support may not be perceived by others.^{21,25} In our study mothers who had lost one twin had the highest malaise scores five years after the birth. As mothers who had lost a singleton or both twins were not followed up we do not have comparative data on their emotional wellbeing.

Several studies have found a raised incidence of child abuse in families with twins.^{17,32,33} Groothuis *et al* suggest that this is a reflection of the extreme stresses faced by families of twins and call for specific preparation of parents expecting a multiple birth and for follow up support.¹⁷ Our findings also suggest the need for specific antenatal preparation and greater awareness and support on the part of health workers both before and after the birth; they also indicate clearly that a mother who experiences the death of one twin has special needs.

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Routine examination in the neonatal period

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Abstract

Objective—To assess the value of the second neonatal examination as a medical surveillance procedure.

Design—Prospective survey of routine neonatal examinations and the abnormalities identified during 8 March-30 June 1988.

Setting—Maternity unit with an annual birth rate of 5700.

Subjects—For first neonatal examination: 1795 babies born in the unit during the 115 day observation period. For second routine examination: 1747 babies (97.3%) discharged from postnatal ward.

Main outcome measures—Missed abnormalities (present but not previously noted); minor abnormalities (superficial infection or trivial or transient abnormalities not requiring intervention); and important abnormalities (unlikely to have been present at first examination but requiring intervention).

Results—An abnormality was detected in 158 (8.8%) infants on first neonatal examination. 1428 (79.6%) babies had a routine second examination, which disclosed 63 previously undetected abnormalities. Of these, seven (11%) would have been present on first examination, 49 (78%) were considered minor, and seven (11%) important—the most consequential being dislocatable hips (four infants). Thus an important finding was detected by only 0.5% of second examinations.

Conclusions—A second thorough examination in the early neonatal period cannot be justified as a screening procedure. A repeat examination of the hips alone in the first week of life is necessary.

Introduction

The report of the Joint Working Party on Child Health Surveillance¹ suggests that each neonate should receive a thorough physical examination within 24 hours after birth with a repeat examination of the hips on discharge from hospital or within 10 days after birth

but no further routine examination until the age of 6 weeks. This contrasts with previous guidelines, which recommended a second full examination, before discharge, for all those babies remaining in hospital for more than two or three days.² The value of an initial neonatal examination is widely accepted, but there is little information concerning the previously recommended second neonatal examination to either support or refute its exclusion from the core programme for child health surveillance proposed by the Hall report.

We recently reviewed the practice of routine neonatal examinations within our maternity unit. We present our results with particular reference to the second neonatal examination to provide information on its value as a medical surveillance procedure.

Subjects and methods

Details of the routine examinations of neonates performed by our senior house officers were collected prospectively from the case notes of all the 1795 babies born during 115 days from 8 March to 30 June 1988. These case notes were already being routinely scrutinised by the registrar so it was therefore possible to collect data without drawing the attention of the senior house officers to the study. The policy of the unit was that babies were fully examined within 24 hours after birth and again on the day of discharge. The second examination was omitted only in those babies discharged within 18 hours after birth and in some babies discharged at a weekend, provided that they had received a full examination in the 24 hours before going home.

All abnormalities identified were recorded. Unfortunately, we were unable to ascertain from the case notes whether parents or nursing or medical staff were the first to discover the abnormality. Any abnormalities detected on the second examination which had not been previously noted were classified as: missed abnormalities—that is, those that would have been present but were not previously noted; minor abnormalities—that is, superficial infection or trivial or

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