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## **“Mother’s Child” and “Father’s Child” Among Twins**

### **A longitudinal twin study from pregnancy to 21 years age, with special reference to development and psychiatric disorders**

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**Abstract.** 234 pairs of twins were studied from pregnancy up to 21 years of age on the basis of records from maternity hospitals, neonatal wards and children’s health centres and questionnaires filled in by the parents when the twins were aged 2-10 and 12-21 years, and by the twins themselves at age 12-21. 74 twins were personally interviewed about human relationships in their families and with the Present State Examination (PSE) at age 15-21.

When the evaluation of parental preference was made by the parents, the mother’s favourites had learned to speak earlier and were more often the psychic leader of the pair, but they more often had sleeping difficulties and other psychosomatic symptoms in adolescence. They were most often scored in class 2-3, non-specific neurotic symptoms in the PSE, but none of them was placed in the higher classes of possible or probable psychiatric disorder. Mothers seem to develop a tighter affectionate bond towards their favourites than do fathers, thus inducing a good basic trust and faster language acquisition in childhood, but probably also transient non-specific neurotic symptoms in adolescence in face of the developmental task of entering autonomous adulthood. The father’s favourites were more often the physical leaders of the pair, showed less accident proneness and most often reported tendencies towards autonomy from their co-twins, thus indicating that the fathers’ attitudes may be more encouraging towards independence. As the least psychosomatic symptoms were seen in twins in the intermediate position regarding parental preference, it seems reasonable that the division of twins between parents on the grounds of favouritism should not be strict.

**Key words:** Twins, Delivery, Development, Inter-twin relationship, Parental preference, Mental health, Psychosomatic symptoms

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## INTRODUCTION

When the mother comes home with two newborn babies, she seldom has an opportunity to be alone with just one of them, nor is she likely to be able to cope alone with taking care of the home and the two infants. Thus the father may become increasingly responsible for looking after the children, and he may take responsibility for nursing one of the babies, while the mother takes over the other one [9]. Thus the development of a "mother's child" and a "father's child" may begin, a solution that has been found to promote the individual development of the twins and alleviate mutual rivalry for their parents' attention [1]. The parenting styles of mothers and fathers are partly different, however [4] and little information is available about the long term consequences of this choice.

The purpose of the present research was to increase knowledge about the causes and consequences of parental preferences in a follow-up from pregnancy to 21 years age, including information from hospital records, questionnaires answered by the parents and the twins and psychiatric interviews of the twins.

## MATERIALS AND METHODS

The basic series consisted of all 335 twin deliveries at Oulu University Central Hospital between the years 1965 and 1973. Birth records were analysed with special attention to perinatal morbidity in the twins. 603 (90%) of the 670 twins born were alive at the end of the neonatal period [2].

The morbidity, development, personality features and inter-twin relationships of the twins were studied in 1975-76 from the child health centre records ( $n = 564$ ) and by means of a questionnaire filled in by the parents ( $n = 537$ ). One third of them, 168 children aged 2-12 years were subjected to zygosity evaluation according to similarity method and to a thorough neurological examination (I.M.), including EEG, and those aged 5 years or more were tested by a clinical psychologist according to the Wechsler Intelligence Scale (WISC), Bender Visuomotor Test and Goodenough Draw-A-Man Test ( $N = 104$ ) [6].

In 1985-86, when their age ranged from 12 to 21 years, the twins were re-examined by means of questionnaires filled in by the parents and the twins themselves [7, 8] and personal interviews. Questionnaire information was received from 497 adolescents altogether in 1985-86. All the pairs in which both twins were still alive are included in the present analyses. These numbered 234 pairs, of which 77 were both boys, 66 were both girls and 91 mixed. Psychiatric interviews (I.M., P.P.) were performed on a total of 84 twins, 10 of whom had lost their co-twin perinatally. The present analyses include the 74 twins whose co-twin is still alive (12 pairs of boys, 11 both girls, 13 mixed pairs together with one girl from an OS-pair and one girl from a SS-pair who came alone when their co-twins refused).

In the questionnaire, the parents reported on twins' health status, school achievement and frequency of psychosomatic symptoms, while the twins themselves filled in the Children's Depression Inventory (CDI) [3], modified by excluding the question on suicidal tendency. Two sum variables, one for psychosomatic symptoms as reported by

the parents and the other for self-rated depressiveness, were formed by adding together the values for each variable. Both parents and twins answered the questions concerning the inter-twin relationships, with special reference to dependency and the three aspects of dominance-submissiveness: physical strength, psychic dominance and the role of spokesman [7, 8]. The parents were also asked about their preference for each twin with a five-degree polar question having mother's favourite and father's favourite at opposite poles. For the present analyses the answers were assigned to three classes by joining the categories of often and always favourite, giving 92 "mother's twins" (20.0%), 53 "father's twins" (11.9%) and 297 intermediate cases (68.1%) (Table 2).

Those aged 15-21 years, were called for personal interview by two child psychiatrists sequentially in 1986, a semi-structured interview about parental, sibling and inter-twin relationships according to Shave and Ciriello [10] being administered by I.M. and a diagnostic psychiatric interview using the Present State Examination (PSE) [13] being carried out by P.P. Each interviewer was blind to the other's interview results and P.P. was also blind to the twins' previous history. Parental preferences were now elicited from the twins on the same five-degree scale as from the parents in the questionnaire. "Mother's twins" now numbered 25, "father's twins" 17 and intermediate cases 32 (Table 5).

## RESULTS

### *Zygoty and sex distribution*

Table 1 presents the zygoty according to similarity method, evaluated at 2-10 years age and the preference reported later by the parents. Zygoty does not seem to affect on parental preference, as two thirds of each group were reported to be in the intermediate group, i.e. as equally close to both the mother and the father. The sex distributions did not differ significantly in the preference groups based on parents' replies and adolescents' own replies (Tables 2 and 5).

**Table 1 - Zygoty according to similarity method and parental preference on twin pairs**

Favouritism	Zygoty			Total
	MZ	DZSS	DZOS	
Both intermediate	10	17	17	44
Opposite poles	2	4	3	9
Both mother's	4	3	5	12
Both father's	–	2	1	3
Intermediate and else	–	1	1	2
<b>Total</b>	<b>16</b>	<b>27</b>	<b>27</b>	<b>70</b>

*Parental evaluation of preference*

Table 2 shows the developmental and health variables as obtained from the questionnaires and children's hospital records, which were found to correlate well with parents' reported preferences. The mothers seemed to develop special attachment to premature children, as 30.4% of the "mother's twins" within the whole group were born before the 37th gestational week, as compared with about 20% prematurity among the intermediate cases and "father's twins". Thus the mean birth weights of the "mother's twins" tended to be lowest (2650 g, 2780 g and 2710 g in "mother's", intermediate and "father's" twins, respectively,  $p=0.0886$ , variance analysis). When only those pairs were examined in which one twin was favoured by the mother and the other by the father, however, no significant difference in birth weight was found. The analysis of other perinatal factors, including Apgar scores at 1 and 15 minutes, intrauterine growth retardation, respiratory disorders, hypoglycaemia and hyperbilirubinaemia did not reveal any significant correlation with parental preference.

The "mother's twins" had learned to speak earlier than the others, and were also more skilful in drawing and most often the psychological leader of the pair, but they were at the same time reported to be more prone to accidents, more often the submissive member in physical aspects and most dependent on their co-twin. School achievements, as indicated by mean values in all subjects and in theoretical subjects in the last school reports, did not differ significantly in the various preference groups. The proportion of talented children (IQ 120 or more according to the WISC) at the age of 5-10 years was 25%, 13% and 0% in the "mother's", intermediate and "father's" twins, but the differences between the groups are not statistically significant. An inferior score in the Bender visuomotor test occurred in 33%, 20% and 75% of the cases in the preference groups, respectively ( $p=0.0093$ ,  $X^2$ -test).

Psychosomatic complaints reported by the parents and sleeping difficulties, reported by both the parents and the adolescents themselves at the age of 12-21 year, were most frequent in the mothers' favourites, while the fathers' favourites scored highest on the items referring to bad expectations for the future and feelings of being disobedient in the CDI. Total score of depressiveness, however did not differ in the various groups.

In the personal interview (Table 3) the "father's twins" showed a non-significant trend to feel more often that the pair had been treated more as a unit of twins than as separate individuals. The "mother's twins" often reported that the nearest person to them had been their cotwin, and the intermediate twins less often, but the differences between the groups are not statistically significant, most probably because of the small numbers in each group. Similarly, the intermediate twins less often had had the same friends as their co-twins at various ages. During the interview, the "mother's twins" often showed dependency on their co-twin and the "father's twins" tended to show the highest oppositional tendencies and desires for autonomy from their co-twin.

Only two of the twins were given a psychiatric diagnosis according to the index definition of the PSE (a 20-year old girl with possible manic psychosis and 16-year old girl with a probable neurotic depression) and these had both been evaluated as being in the intermediate position by their parents. Possible psychiatric diagnosis class 4, including either a high total score or a situation with a meaningful key symptom of psychiatric disorder, contained 5 of the 46 intermediate twins and 2 of the 7 "father's twins" but none of the "mother's twins", whereas the "mother's twins" tended to accumulate in classes 2-3, including non-specific neurotic symptoms (Table 3).

**Table 2 – Parent’s evaluations of their preferences regarding their twins, in relation to children’s development, abilities and health, according to hospital records from the neonatal period, questionnaires filled in by the parents at ages 2-10 and 12-21 years, and questionnaires filled in by the twins themselves at ages of 12-21 years**

	Mother’s twin N = 92	Intermediate N = 297	Father’s twin N = 53	P-value	
Sex: boys	55.4 %	54.9 %	45.3 %	ns	(a)
PERINATAL FACTORS (hospital records)					
Prematurity (below 37gw)	30.4 %	18.5 %	20.7 %	0.051	(a)
Treatment in the neonatal ward	39.1 %	32.3 %	32.1 %	ns	(a)
DEVELOPMENT AND ABILITIES (parents’ report)					
First walking without support (mean of mos)	13.2	12.6	13.4	ns	(b)
First words (mean of mos)	13.6	15.6	15.9	0.001	(b)
First sentences (mean of mos)	21.6	24.4	27.3	0.029	(b)
Skilful in drawing	57.1 %	41.7 %	49.1 %	0.034	(a)
Accident-proneness	17.6 %	9.1 %	7.5 %	0.053	(a)
Physically dominant	4.3 %	3.0 %	13.2 %	0.005	(a)
Psychically dominant	8.7 %	2.7 %	1.9 %	0.025	(a)
High intra-pair dependance	16.3 %	15.2 %	5.7 %	0.156	(a)
HEALTH (parents’ report)					
Sleeping difficulties at least monthly	10.2 %	2.2 %	5.7 %	0.005	(a)
Psychosomatic complaints, sum (mean score)	2.04	1.68	1.92	0.020	(b)
DEPRESSIVENESS (Own report, CDI)					
INDIVIDUAL ITEMS					
– Bad expectations of future	17.5 %	10.7 %	28.3 %	0.002	(a)
– Disobedience	26.1 %	19.7 %	32.1 %	0.089	(a)
– Sleeping difficulties	15.2 %	5.1 %	13.2 %	0.003	(a)
TOTAL DEPRESSIVENESS (mean score)	5.38	5.09	5.04	ns	(b)

a X<sup>2</sup>-test    b Kruskal-Wallis test

**Table 3 - Parents' evaluations of their preferences regarding their twins in relation to the children's own replies in the personal interview and Present State Examination at the age of 1521 years**

	Mother's twin N = 16	Intermediate N = 46	Father's twin N = 9	P-value	
Treated as a unit	44 %	26 %	67 %	0.063	(a)
Nearest person					
- up to age 6					
- mother	13 %	16 %	11 %		
- father	0 %	5 %	0 %		
- twin	67 %	50 %	56 %	ns	(b)
- age 7-12 years					
- mother	6 %	16 %	0 %		
- father	0 %	2 %	0 %		
- twin	63 %	50 %	63 %	ns	(b)
- age 13-16 years					
- mother	6 %	7 %	0 %		
- father	0 %	2 %	0 %		
- twin	63 %	29 %	33 %	0.056	(b)
- now					
- mother	6 %	2 %	0 %		
- father	0 %	2 %	0 %		
- twin	31 %	18 %	22 %	ns	(b)
Friends same					
- up to age 6	88 %	74 %	89 %	0.000	(a)
- age 7-12 years	81 %	44 %	56 %	0.033	(a)
- age 13-16 years	63 %	11 %	33 %	0.000	(a)
- now	25 %	7 %	22 %	0.114	(a)
INTER-TWIN RELATIONSHIPS (Interviewer's observation)					
- Dependance	44 %	13 %	22 %	0.039	(a)
- Autonomous tendencies	6 %	9 %	33 %	0.139	(a)
- Oppositional tendencies	0 %	20 %	33 %	0.073	(a)
PRESENT STATE EXAMINATION					
- Behaviour, speech and other syndromes,					
Score 1 or more	6 %	11 %	11 %	ns	(a)
- Specific neurotic syndromes					
Score 2 or more	13 %	20 %	0 %	ns	(a)
- Non specific neurotic syndromes	69 %	41 %	33 %	0.087	(c)
Score 2 or more					
- Total	37 %	30 %	11 %	ns	
Score 4 or more					
- Definition					
- 1: no symptoms	19 %	26 %	33 %	ns	
- 2-3: Non-specific symptoms	81 %	58 %	44 %	0.058	(c)
- 4: possible Dg	0 %	11 %	22 %		
- 5: Dg	0 %	4 %	0 %		

(a)  $\chi^2$ -test (b)  $\chi^2$ -test, twin vs others (c)  $\chi^2$ -test, mother's favourite vs father's favourite

*Twin's own evaluation of preference*

Parents' and adolescents' own estimations of preferences were the same in only 39 cases out of 71 personally interviewed adolescents for whom parents' evaluation was known. There were even six cases in which the parents' and adolescents' evaluations were opposed (Table 4). The perinatal, developmental and mental health factors were also somewhat differently distributed in the various preference classes as compared with those evaluated by the parents (Table 5). The father's twins as evaluated by the twins themselves had more often been treated in the neonatal ward, but no statistically significant difference was found even now in the other perinatal factors, including birthweight, Apgar scores, intrauterine growth retardation, gestational age, respiratory disorders, hypoglycaemia and hyperbilirubinaemia.

At 5-10 years of age 23%, 20% and 0% of the "mother's", intermediate and "father's" twins were talented according to the WISC (ns), while the proportion of inferiority in the Bender visuomotor test were 37%, 27% and 37%, respectively (ns).

High inter-twin dependency as reported by the parents was still found in the "mother's twins", but no differences in the dominance-submissive aspects of twinship. Father's twins had more often suffered from listlessness, while the other psychosomatic symptoms or items in the CDI did not differ significantly between the various preference groups. The "mother's twins" showed a non-significant trend for having had more often their co-twin as their nearest person up to the age of 12 years, after which this trend shifted to the intermediate twins, although differences between the groups are not statistically significant. The "mother's twins" tended to be more dependent on the co-twin according to the interviewers' observations, as well, while the "father's twins" tended to have the greatest autonomy and the highest oppositional tendencies. The girl with probable manic psychosis in the PSE reported that she had been a "father's twin", while the one with probable neurotic depression saw herself in the intermediate position. The PSE index definition of PSE did not reveal any significant differences in distribution of the various syndromes (Table 6).

**Table 4 - Correlations between parents' evaluations of their preferences in the questionnaires and the children's own evaluations during the personal interview**

Adolescent's own evaluation	Parents' evaluation			Total N
	Mother's favourite N	Intermediate N	Father's favourite N	
Mother's favourite	9	12	3	24
Intermediate	4	25	1	30
Father's favourite	3	9	5	17
<b>Total</b>	<b>16</b>	<b>46</b>	<b>9</b>	<b>71</b>

**Table 5 - Twins' evaluations of parental attachment to them in relation to their development, abilities and health according to the hospital records from the neonatal period, questionnaires filled in by their parents at ages of 2-10 and 12-21 years, and questionnaires filled in by the twins themselves at ages of 12-21 years**

	Mother's twin N = 25	Intermediate N = 32	Father's twin N = 17	P-value	
Sex: boys	40 %	63 %	41 %	ns	(a)
PERINATAL FACTORS (hospital records)					
Prematurity (below 37 gw)	20 %	13 %	30 %	ns	(a)
Treatment in neonatal ward	36 %	19 %	59 %	0.018	(a)
DEVELOPMENT AND PERSONALITY (Parents' report)					
First walking without support (mean of mos)	13.2	12.8	12.7	ns	(b)
First words (mean of mos)	15.0	14.3	15.2	ns	(b)
First sentences (mean of mos)	22.3	22.8	21.4	ns	(b)
High intra-pair dependance	28 %	3 %	12 %	0.024	(a)
HEALTH (Parents' report)					
Listlessness at least monthly	29 %	6 %	38 %	0.022	(a)
Strained at least monthly	24 %	10 %	20 %	ns	(a)
Sleeping difficulties at least monthly	4 %	0 %	13 %	ns	(a)
Psychosomatic complaints, sum (mean score)	2.05	1.63	2.21	ns	(b)
DEPRESSIVENESS (Own report, CDI)					
- INDIVIDUAL ITEMS					
Bad expectations of future	17 %	13 %	25 %	ns	(a)
Disobedience	24 %	9 %	24 %	ns	(a)
Sleeping difficulties	8 %	9 %	6 %	ns	(a)
TOTAL DEPRESSIVENESS (mean score)	4.50	5.14	6.71	ns	(b)

a  $\chi^2$ -test    b Kruskal-Wallis test



**Table 6 - Twins' evaluations of parental attachment to them in relation to their replies in the personal interview and Present State Examination at ages of 15-21 years**

	Mother's twin N = 25	Intermediate N = 32	Father's twin N = 17	P-value	
Treated as unit	44 %	38 %	29 %	ns	(a)
Nearest person					
- up to age 6					
- mother	26 %	16 %	0 %		
- father	0 %	0 %	12 %		
- twin	61 %	52 %	47 %	ns	(b)
- age 7-12 years					
- mother	22 %	13 %	0 %		
- father	0 %	0 %	6 %		
- twin	65 %	52 %	47 %	ns	(b)
- age 13-16 years					
- mother	17 %	3 %	0 %		
- father	0 %	0 %	6 %		
- twin	38 %	44 %	29 %	ns	(b)
- now					
- mother	8 %	3 %	0 %		
- father	0 %	0 %	6 %		
- twin	21 %	31 %	12 %	ns	(b)
Friends seme					
- up to age 6	84 %	75 %	82 %	ns	(a)
- age 7-12 years	52 %	50 %	65 %	ns	
- age 13-16 years	32 %	23 %	29 %	ns	(a)
- now	24 %	3 %	18 %	0.069	(a)
<b>INTER-TWIN RELATIONSHIPS</b>					
<b>(Interviewer's observation)</b>					
- Dependance	29 %	16 %	18 %	ns	(a)
- Autonomous tendencies	8 %	6 %	25 %	ns	(a)
- Oppositional tendencies	17 %	12 %	25 %	ns	(a)
<b>PRESENT STATE EXAMINATION</b>					
<b>- Behaviour, speech and other syndromes</b>					
Score 1 or more	12 %	6 %	12 %	ns	(a)
- Specific neurotic syndromes					
Score 2 or more	12 %	22 %	12 %	ns	(a)
- Non-specific neurotic syndromes					
Score 2 or more	48 %	50 %	41 %	ns	(a)
- Total					
Score 4 or more	24 %	34 %	24 %	ns	(a)
- Definition					
1: no symptoms	20 %	28 %	29 %	ns	(a)
2-3: non specific symptoms	68 %	62 %	53 %	ns	(a)
4: possible Dg	12 %	6 %	12 %	ns	(a)
5: Dg	0 %	3 %	6 %	ns	(a)

a  $\chi^2$ -test    b  $\chi^2$ -test, twin vs others

## DISCUSSION

Twin studies have traditionally been used to investigate whether genetic factors influence the development, but the twin method may offer an even better opportunity to study the effect of environmental factors [12]. One of these environmental factors is parental attachment to the child.

The consequences of maternal preference on a twin up to the age of 4 have been studied in particular by Minde et al [5], who found that the preferred twin was healthier during the perinatal period and had fewer behaviour problems and a higher IQ at age 4. The future of the “left alone” twin is assumed to be risky for the child’s future [13]. On the other hand, parental preference did not significantly effect on infants’ quality of attachment in a small study of Szajnberg [11]. The results of Minde et al are supported by the present findings that the “mother’s twins” showed faster language acquisition and a non-significant trend for higher intelligences at ages 5 to 10 years.

In view of these better achievements of mother’s favourites, our findings seem surprising at first, in that non-specific neurotic symptoms in the PSE as well as psychosomatic symptoms and the most frequent sleeping difficulties seemed to accumulate in this maternal preference group. This can nevertheless be understood on the basis of the adolescent age at which the PSE interview was performed. Many symptoms can occur transiently in adolescence along with the great bio-psycho-social changes. Compared with singletons, twins have a double task of gaining autonomy in adolescence: from their parents and from their co-twin. This autonomy struggle seems to be more difficult for the “mother’s” twins. It seems that the mother tends to build up a more cohesive relationship with her child, which gives faster verbal development and more obedient behaviour in childhood, but may cause transient “innocent” symptoms in adolescence when the developmental task is to break off of cohesive relationships in order to enter autonomous adulthood. The next step of the present longitudinal project, the examination of the same subjects in adulthood, will show if these symptoms in fact were transient ones.

It is notable that no “mother’s twins” were found in the more disturbed groups 4-5 of the PSE Index Definition, a result which most probably confirms the above suggestion that the non-specific symptoms are of an innocent nature, possibly having some causal relationship with a tight affectional bond with the mother. The basic trust of “mother’s twins” has developed well. Another possible indicator of cohesion induced by the mothers is the finding that, “mother’s twins” were the most dependent on their co-twins, most often had same friends and most often saw their co-twin as their nearest person in adolescence.

In studying maternal and paternal attitudes towards singletons and twins, Lytton [4] found that the fathers’ behaviour towards their children was very largely parallel to that of the mothers, but power assertion is a more important factor in fathers’ behaviour while the mothers have a general tendency to resort to the use of reasoning when interacting with the child. His results are in accordance with the present ones, in that mother’s twins learned to speak faster and were more often the psychological leaders in the twin pairs, while the fathers’ twins were the physical leaders and probably better at gross motor activities, as they had a lower accident-proneness. It is

possible that these parental roles may be changing nowadays, with the increasing numbers of working mothers and with fathers participating more in bringing up their children.

While mothers seem to bind their children, fathers attitudes may be more encouraging to independence. The father's twins more often felt that they were disobedient and had bad expectations of the future according to the CDI, while in the personal interview they most often tended to indicate opposition towards their co-twin and desires for autonomy. These could perhaps be seen as masculine features, either as a consequence of identification with the father or a feature that attracted the father to choose the more independent and robust twin as his favourite.

Psychosomatic symptoms and sleeping difficulties occurred least often in twins in an intermediate position. Thus, even if the development of parental preferences is said to promote individual development and alleviate mutual rivalry for parents' attention [1], it seems most reasonable that the division of twins between parents should not be made too strict. It is to the benefit of child's development that he should be allowed to spend some time with one of the parents, but preferably with the mother and father in turn, so that neither remains distant to him.

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