DOCUMENT RESUME

ED 067 156 PS 005 797

AUTHOR	McGurk, Harry; Lewis, Michael
TITLE	Birth Order: A Phenomenon in Search of an Explanation.
INSTITUTION	Educational Testing Service, Princeton, N.J.
REPORT NO	RB-72-20
PUB DATE	May 72
NOTE	15p.
EDRS PRICE	MF-$0.65 HC-$3.29
DESCRIPTORS	*Birth Order; Bulletins; Child Development; Child Psychology; *Developmental Psychology; *Emotional Development; Family Structure; Mother Attitudes; Nursery Schools; *Parent Child Relationship; Research; Sex Differences; Siblings; *Social Behavior

ABSTRACT

Fifty-two 44-month-old children were observed in a nursery school over a period of two weeks with peer and adult oriented behaviors recorded, and data analyzed in terms of the subjects' sex and birth order. Sex effects were as expected, but birth-order effects highlighted the second-born child as representing a distinct category. In particular, second-born children manifested greater dependency behavior than either first- or later-borns. The results are discussed in terms of the relationship between maternal responsiveness to attention-seeking behavior in infancy and later dependency behavior; i.e., parental responsiveness leads to less not more dependency behavior in later childhood. It is suggested that because the second-born child receives less attention in infancy, he later exhibits more dependency behavior. (Author/LH)

RESEARCH BULLETIN

RB-72-20

BIRTH ORDER: A PHENOMENON IN SEARCH OF AN EXPLANATION

Harry McGurk

and

Michael Lewis

This Bulletin is a draft for interoffice circulation. Corrections and suggestions for revision are solicited. It is automatically superseded upon formal publication of the material.

Educational Testing Service
Princeton, New Jersey
May 1972

Birth Order: A Phenomenon in Search of an Explanation

Harry McGurk and Michael Lewis
Educational Testing Service

Abstract

Fifty-two 44-month-old children were observed in a nursery school over a period of two weeks. Peer and adult oriented behaviours were recorded, and data were analysed in terms of subjects' sex and birth order. Sex effects were as expected, but birth-order effects highlighted the second-born child as representing a distinct category. In particular, second-born children manifested greater dependency behaviour than either first- or later-borns. Results are discussed in terms of the relationship between maternal responsiveness to attention seeking behaviour in infancy and later dependency behaviour.

Birth Order: A Phenomenon in Search of an Explanation[1]

Harry McGurk and Michael Lewis
Educational Testing Service

Although birth order has been a topic of recurrent interest to psychologists for almost a century (e.g., Galton, 1874), the greatest impetus to the systematic study of birth-order effects was provided by Schachter (1959). Schachter observed that under anxiety provoking conditions, first-born female subjects were more likely to seek out the company of others than were later-born females. Speculating on the nature of these differences, Schachter suggested that through his initial experience as the sole focus of parental love and attention the first-born comes to associate the reduction of his needs, particularly the reduction of pain and fear, with the presence of others. Later-born children do not enjoy the experience of being the exclusive and constant focus of attention. In consequence, they have to acquire strategies for tension reduction through their own efforts. In addition, the birth of a younger sibling reduces the first-born's status as the primary focus of parental attention and motivates him to seek attention, approval and support from others. Schachter argued that, as a consequence, the first-born, in his later life, manifests greater affiliative dependence on others and becomes more susceptible, more conforming to the influence of others than later-born children.

Warren (1966) and Miley (1969) provide recent summaries of the birth-order research following Schachter's original publication. Two features characterize much of that research: (a) an almost exclusive reliance upon adult subjects, usually undergraduate students, (b) concern only with differences between first- and later-born subjects, the implicit assumption being that while first-borns

are in some sense unique, later-borns represent a homogeneous population with respect to birth-order effects. Within these limitations, however, Schachter's original proposals, concerning the greater need for affiliation and the greater conformity of the first-born, appear to have received broad confirmation (Warren, 1966).

With relatively few exceptions (e.g., Koch, 1956; Rothbart, 1971; Sutton-Smith & Rosenberg, 1970) researchers in this area have neglected to study effects of birth order during childhood and have ignored the possibility of birth-order differences other than those between first- and later-born siblings. If birth order is a variable of psychological significance, then its effects should be more marked during childhood than during adulthood, when they may have become attenuated as the result of later experience. More imperatively, if we are to understand how birth-order differences develop, as opposed to merely speculating about their origins, it is important that any differences that exist should be identified earlier rather than later in the developmental process. Moreover, while earlier research has justifiably emphasised the uniqueness of the first-born's experience, the possibility of there being unique effects for birth order associated with other ordinal positions cannot be ignored.

The present research examined the relationship between birth order and behavior in a nursery school situation in a sample of children in the second half of their fourth year. The data were collected in the course of a larger, longitudinal study of cognitive and affective development in infancy and early childhood (Lewis & Ban, 1971; Lewis, Goldberg & Campbell, 1969).

METHOD

Subjects

The sample comprised 52 children aged 44 months ($\pm$ 4 weeks). For purposes of the present study, Ss were regarded as representing three groups, as follows:

1. First-born: there were 14 (6 male, 8 female) Ss in this group. Two were only-born children and one S was from a three-child family; all other Ss in this group were from two-child families.

2. Second-born: this group comprised 10 (6 male, 4 female) Ss. Six were from two-child families and four were the middle-born of three children.

3. Third- and later-born: there were 28 (12 male, 16 female) Ss in this group. Ten were last-born children, and the remainder were from families of up to six children.

Sample size precluded the use of more categories. The sample was heterogeneous with respect to socioeconomic status, and the three groups were comparable in this respect. No account was taken of SES in data analysis.

Procedure

Subjects were divided into five groups of approximately equal size, without regard to birth order but with approximately equal numbers of males and females in each group. Each group attended the Fels Research Institute nursery school for two-and-a-half hours every morning for two weeks during which the children were free to engage in a variety of structured and unstructured activities as they wished. In addition to the nursery school staff, two observers were present throughout each session. Notes were taken during the session, and at the end of each session observers, unaware of birth-order positions, rated each child on 14 social behaviours drawn from

the list employed in the Fels Research Institute Longitudinal Study of Human Development (see Table 1). Ratings were made on a 9-point scale. Standard written instructions were given to observers including (a) the name and a general description of each variable under consideration; (b) examples of behaviours which would and should not be used to make each rating; (c) behavioural examples for five points on each rating scale, points assumed to be equidistant.

Each subject participated in 10 sessions altogether; to obtain a composite score for each subject on each variable, daily ratings were summed across sessions and average ratings thereby obtained.

Results

Interobserver reliabilities for ratings of the behaviours recorded ranged from .57 (Withdrawal from aggression) to .98 (Aggression towards adults); all coefficients were significant at beyond the .05 level. Although there were two observers present at every session, practical considerations required that only one observer could attend all sessions; data to be presented here are based on the ratings of that observer.

Mean ratings on each variable are presented in Table 1 for each birth-order/sex group. A multivariate analysis of variance, employing sex and birth order as independent variables and ratings on the 14 social behaviours as dependent variables, yielded a significant effect for sex ($F = 7.44$; $df = 15,32$; $p < .001$) and a near-significant effect for birth order ($F = 1.85$; $df = 15,32$; $p < .07$). Subsequent univariate analysis indicated that eight measures discriminated significantly between males and females. Boys were more aggressive towards their peers than girls ($p < .001$ for physical aggression; $p < .06$ for verbal aggression) and they were also more aggressive towards adults ($p < .001$). Boys also spent more time in individual activity ($p < .005$). Girls sought more

help from adults than boys ($p < .005$), and they were more obedient to adult instruction ($p < .001$). Finally, boys indulged in more activity that involved adopting male roles; conversely, girls indulged in more female role-playing activity ($p < .001$).

Table 1 about here

Univariate analysis also revealed that five measures discriminated between the various birth-order positions and, as is apparent from Table 1, the relationship which emerged in each case was a curvilinear one, second-borns receiving higher ratings than first- or later-borns. Orthogonal contrasts of the birth-order effect for these variables indicated that second-born children sought more adult help ($p < .001$) and more adult approval ($p < .005$) than first- or later-borns. They also spent more time in individual activity ($p < .05$), were generally more talkative ($p < .01$) and expressed more negative affect ($p < .01$) than subjects from the other two positions.

A curvilinear relationship is apparent in several other measures, though in these instances the difference between the birth-order positions is not statistically significant. Thus, second-born children received the highest mean ratings on verbal aggression to peers, seeking help from adults, and expression of positive affect. Second-born males received the highest ratings for male role-playing activity while second-born females had the highest rating for female role-playing. Second-born males received the lowest rating on withdrawal from aggression while second-born females had the highest rating on this variable. However, none of the sex x birth-order interaction effects reached statistical significance.

DISCUSSION

The effects for sex of subject reported above serve more to support the validity of the measures employed in this study than to afford new information on the nature of sex differences in early childhood. Generally, the results confirm males in the present age range as more aggressive and more independent of adult authority than females (cf., Bell, Weller, & Waldrop, 1971, p. 58). Of some interest is the finding that, in terms of the role-playing measures employed here, sexual identification is discernible by three-and-a-half years.

The most striking feature of the observed birth-order effects is their curvilinearity. Second-born children showed more dependency behaviour (seeking help and approval from adults and seeking affection, though the latter was not statistically significant) than subjects in the other two groups. They were also more talkative, spent more time alone and expressed more negative affect than either first- or later-born subjects. None of the significant effects were linear with respect to order of birth. Three variables did yield linear, though nonsignificant, ratings (Physical aggression to peers; Aggression to adults; Conformity to adult commands--see Table 1), but in each case the direction of the effect was different for males and females. Further, in an analysis restricted to simple comparisons between first- and later-born subjects (i.e., all subjects excluding first-borns) there were no effects for birth order whatever. This was true for all variables, but reference to the three dependency behaviours provides an illustrative example. For first-born males, the mean ratings for help, affection and approval seeking were 2.77, 1.32 and 1.70 respectively; for other males the corresponding ratings were 2.70, 1.53 and 1.53. Similar findings were obtained for females. Thus, by combining data for second-borns with that for third-

and later-borns, and regarding these subjects as a homogeneous group, one would be led to the conclusion that birth order has no effect upon dependency behaviour, whereas the data reported in Table 1 amply demonstrate that such an effect exists. The case, therefore, is clearly made that birth-order effects are not restricted to differences between first- and later-borns and that to limit their study to such a dichotomy may be misleading.

As a means of facilitating understanding of at least some of the differences associated with birth order, the remainder of the present discussion will focus upon the observed relationship between birth order and dependency behaviour. It was noted that first- and third- or later-born subjects showed less dependency upon adults than did second-borns, and the question arises as to the kind of factors in subjects' earlier experience that might give rise to such differences. There is some suggestive evidence that, during infancy, subjects at different birth-order positions receive differing amounts of parental attention; such differences would go some way towards accounting for observed differences in later dependency behaviour. Consider that, in two-child families in the present sample, the modal age difference between first- and second-borns was 18 months (median = 20 months). This means that first-born infants were more or less the sole focus of maternal attention until the middle of their second year. At the birth of the second child, the mother has to divide her attention between two infants so that during his first year or so the second child must, of necessity, receive less attention than did his older sibling during the corresponding period. Now, in the three-child families (and in the families of more than three children) the modal (and median) difference between second- and third-born (or between the subject and his next older sibling) was 30 months. If these figures can be regarded as representative, then they indicate that, in the three-child family,

the first-born child is 4 years old and the second-born is 2 1/2 years old by the time the third child is born. That is, in the three-child family the two older siblings have reached an age of relative independence, are old enough to play together and do not require constant close supervision at the birth of the third child. Accordingly, the mother is more free to attend to the third-born child during its first year or so than was the case with her second-born. Thus, in the two-child family, the second-born child receives less attention than his older sibling, and in the three-child family he may receive less attention than either his older or his younger sibling. It appears, therefore, that the second-born child, having received less adult attention during infancy than older or younger siblings, seeks more adult help and approval in later childhood.

Such an interpretation is at variance with the standard learning theory account of birth-order differences in dependency behaviour, such as that advanced by Gewirtz (1948). The essence of Gewirtz's argument is that the more attention seeking behaviour is reinforced in infancy, the more likely is it that, later, children will seek attention from parents and other adults; since first-borns receive more attention in infancy, so are they more likely to seek adult attention later. Such a prediction was not supported in the present study.

An increasing amount of evidence is becoming available to cast serious doubt on the notion that behaviours which are "reinforced" in infancy are thereby strengthened and the probability of their later expression increased. For example, Bell and Ainsworth (1970) observed that, over the first year of life, the frequency and duration of crying is negatively related to maternal responsiveness to the infant's cry. They also observed that, at one year, infants

whose mothers had been most responsive to their earlier crying, were more subtle, clear and varied in their vocalisation than were infants whose mothers had been less responsive. In other words, maternal responsiveness to infant crying enhanced the transformation to other, more varied, forms of communication.

Other evidence for the inadequacy of a simple habit strength account of developmental phenomena is provided in a series of studies conducted by Lewis and his associates (summarized in Lewis, 1972). In a study of free-play behaviour of one-year-olds, a positive association was observed between the amount of time males spent touching the mother and the amount of physical contact the mother made with the infant at six months. A reinforcement principle might appear to apply here: mothers who handle and cuddle their babies a great deal during the early months appear to produce infants who seek a great deal of physical contact at one year. However, later, the same children, now two years old, were again observed in a free-play situation with their mothers. Now a negative correlation was observed between amount of touching at one and two years. At two years, however, there was an increase in amount of looking toward the mother compared with one year, and there was a trend for boys who touched most at one year to look most at two years. Lewis (1972) interprets this as evidence from a proximal to a distal mode of expressing attachment. Observe that, just as in the Bell and Ainsworth study infants whose early crying elicited most maternal responding later showed more varied forms of communication, so in the present instance infants whose mothers initiated most proximal contact in the early months were the same infants who later most readily made the transformation from proximal to distal modes of responding.

These various findings seem to point to the existence of a set of interrelated need or motive systems which, in the course of development, are ex-

pressed in successive behavioural modes. In the present discussion we may speak of a communicative need, expressed initially through crying and later through more varied and subtle forms of vocalisation, eventually in language itself. Or we may speak of an attachment need, expressed initially through bodily contact, later through more distal forms of expression. What appears also from these studies is that when the behaviour associated with an early mode of expression is not responded to, the outcome is not the extinction or diminution of that behaviour but rather a maintenance and possibly an extension of the behaviour. Contrawise, when early forms of expression are responded to, the specific behaviour involved is not strengthened according to reinforcement principles; rather such responsiveness appears to enhance the transformation to subsequent modes of expression and accelerates the developmental process.

It is suggested that the findings of the present study, with respect to the relationship between birth order and childhood dependency behaviour, are also amenable to a transformational interpretation; that parental responsiveness to early attention seeking and dependency behaviour leads to less, not more, dependency behaviour in later childhood; and that because he receives less attention in infancy the second-born child later exhibits more dependency behaviour than first- or later-born siblings. The ex post facto, speculative nature of such reasoning is acknowledged. Each step in the argument, however, is amenable to empirical investigation, and a basis has been suggested whereby a longitudinal study of the relationship between birth order and later behaviour might be fruitfully undertaken.

REFERENCES

Bell, R. Q., Weller, G. M. & Waldrop, M. F. Newborn and preschooler: Organisation of behaviour and relations between periods. Monographs of the Society for Research in Child Development, 1971, 36, Nos. 1-2.

Bell, S. M. & Ainsworth, M. D. S. Infant crying and maternal responsiveness: Reinforcement reassessed. Paper presented at Eastern Psychological Association meetings, Atlantic City, 1970.

Galton, F. English men of science: Their nature and nurture. London: MacMillan, 1874.

Gewirtz, J. L. Succorance in young children. Doctoral dissertation, State University of Iowa, 1948.

Koch, H. L. Some emotional attitudes of the young child in relation to characteristics of his sibling. Child Development, 1956, 27, 393-426.

Lewis, M. Parents and children: Sex-role development. University of Chicago School Review, 1972, 80, 229-240.

Lewis, M. & Ban, P. Stability of attachment behaviour: A transformational analysis. Paper presented at Society for Research in Child Development meetings, Minneapolis, April 1971.

Lewis, M., Goldberg, S. & Campbell, H. A developmental study of information processing within the first three years of life: Response decrement to a redundant signal. Monographs of the Society for Research in Child Development, 1969, 34 (9, Serial No. 133).

Miley, C. H. Birth order research 1963-1967: Bibliography and index. Journal of Individual Psychology, 1969, 25, 64-70.

Rothbart, M. K. Birth order and mother-child interaction in an achievement situation. Journal of Personality and Social Psychology, 1971, 17, 113-120.

Schachter, S. The psychology of affiliation. Stanford: Stanford University Press, 1959.

Sutton-Smith, B. & Rosenberg, B. G. The sibling. New York: Holt, Rinehart & Winston, 1970.

Warren, J. R. Birth order and social behaviour. Psychological Bulletin, 1966, 65, 38-49.

FOOTNOTE

[1]The major portion of this research was supported by a National Science Foundation grant, GB 8590, and a grant from the Spencer Foundation to author Michael Lewis.

Table 1

Mean Ratings on Dependent Variables for Each Birth Order/Sex Position

	Males			Females		
Birth Order Position	1st	2nd	3rd and later	1st	2nd	3rd and later
Physical aggression towards peers[1]	3.43	3.71	3.73	2.46	1.88	1.56
Verbal aggression towards peers[1]	2.23	3.88	2.63	2.51	2.63	1.53
Aggression towards adults[1]	1.08	1.68	1.78	1.11	1.03	1.00
Seeking help from adults[1,2]	2.77	3.53	2.28	3.44	4.83	3.16
Seeking affection from adults	1.32	1.75	1.63	1.63	2.35	1.94
Seeking approval from adults[2]	1.70	1.93	1.33	1.46	2.63	1.40
Time alone[1,2]	4.15	6.22	4.94	3.94	4.33	3.23
Loquacity[2]	3.57	6.23	4.13	4.99	5.48	3.78
Conformity to adult instruction[1]	8.37	6.55	6.28	8.04	8.18	8.26
Male role-playing[1]	3.82	5.05	3.94	1.15	1.23	1.24
Female role-playing[1]	1.53	1.35	1.60	2.89	3.73	2.78
Positive affect	3.68	4.60	3.77	3.79	5.00	3.54
Negative affect[2]	1.70	3.58	1.90	2.04	2.63	1.87
Withdrawal from aggression	4.40	3.30	4.11	4.04	4.83	3.33

[1]Significant effect for sex: see text for details

[2]Significant effect for birth order: see text for details